

## EA Appendix VII

### Hydrodynamic Modeling and Current Data

# **Appendix A**

## **Hydrodynamic Study**

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### **Introduction**

**Purpose.** The purpose of the hydrodynamic modeling portion of this study is to develop a two-dimensional model of the Upper Chesapeake Bay that will satisfy the needs of a navigation study of the Brewerton Eastern Extension Channel widening and Tolchester Channel realignment. The navigation study will use the hydrodynamic modeling results for both the ship simulation and sedimentation portions of this study. The Upper Chesapeake Bay and its navigation channels are geometrically complex and are best studied using an unstructured numerical model. Given this fact and the lack of salinity stratification in the area, a two-dimensional (2D) vertically-averaged model is quite adequate for this navigation study.

**Approach.** A finite-element mesh that covered all of the Upper Chesapeake Bay from just downstream of the Chesapeake Bay Bridge near Annapolis, Maryland, upstream to the head of tide in the Susquehanna River and to just east of Chesapeake City, MD on the C&D Canal was constructed (Figure 1). All of the major geometric features that affect currents within the navigation channels were included in the mesh. This required the use of both triangular and rectangular shaped elements of various sizes. Sufficient refinement was provided throughout the mesh so as to be able to observe circulation patterns that might depart from existing conditions throughout the bay. Once the existing (base) conditions were determined, the various plan channel depths and widths were incorporated into the numerical model and plan conditions determined. Spring tide conditions were also determined to be the most important for the ship simulation and sedimentation portions of the study.

## Model Description

**TABS.** TABS-MD is the name of a family of computer programs used in the two-dimensional modeling of hydrodynamics, sedimentation, and constituent transport in rivers, reservoirs, bays, and estuaries. The system was developed by the Hydraulics Laboratory at WES from the finite-element, hydrodynamic, and sediment transport models originally developed by Resource Management Associates, Inc., in Davis, California. Significant enhancements to the codes have allowed for applications to a wide class of computational hydraulics problems. Recent improvements to the system include the addition of a graphical user interface (FastTABS) which allows for quick editing of mesh geometry, simplified assignment of boundary conditions and model parameters, and sophisticated post-processing capabilities including color contour plots, velocity vector display and flow trace animations.

**RMA-2.** The hydrodynamic model, RMA-2, solves the depth-integrated equations for conservation of mass and momentum in two horizontal directions. The finite-element method, using Galerkin weighted residuals, is employed to solve the conservation of mass and momentum equations. Bottom friction is calculated using the Manning's equation, and eddy viscosity coefficients are used to estimate the effects of turbulence.

The finite-element mesh may contain quadrilaterals, triangles, or a mixture of the two; and each element may have parabolic sides. Elemental shape functions are quadratic for flow and linear for depth. Integration in space is Gaussian. Derivatives in time are replaced by nonlinear finite difference approximations.

The finite-element solution is fully implicit, and the set of simultaneous equations is solved by Newton-Raphson iteration. The solution is achieved using a front-type matrix inversion that assembles a portion of the matrix and solves that portion before assembling the next portion of the matrix. A description of the model is given by Thomas and McAnally (1991).

## Modeling Procedures

**Mesh Design.** The numerical model was designed to allow accurate replication of the tidal circulation throughout the Upper Chesapeake Bay (Figure 1). The mesh was sufficiently refined to allow observation of this circulation throughout the entire Upper Chesapeake Bay, including the areas in and around the Brewerton Eastern Extension and Tolchester

Channels. This high level of resolution was included so as to insure that the impacts of the proposed changes to the channels could be studied at no farther than 300 ft intervals measured across the channel and 2500 ft intervals measured along the channel. The area around the Tolchester Channel was typically measured in greater detail due to the significance of the changes to the channel alignment.

Model geometry for the base condition was defined by the National Oceanic and Atmospheric Administration (NOAA) Charts 12270 (dated May 1990), 12272 (dated Nov. 1992), 12274 (dated Feb. 1993), 12278 (dated Feb. 1992), and 12281 (dated Jan. 1993) that were supplied by the United States Army Engineer District, Baltimore (the District). The Brewerton Channel Eastern Extension plan conditions were constructed by moving base condition nodes to define the 550 foot and 600 foot widening plans. The mesh was designed with elements that incorporated both the base and plan conditions for the Tolchester Channel realignment. Nodal elevations for the affected elements were changed from the base to the different plan conditions in this region of the mesh. This provided for direct comparison of hydrodynamic and sediment variations between the base and plan conditions on a node-by-node basis in and around the Tolchester Channel area.

A high degree of resolution was provided in the mesh not only in the study areas but throughout the entire area of the Upper Chesapeake Bay covered by the mesh, including Baltimore Harbor and its approaches, the Chester River, and the Magothy River. With the low velocities encountered in the Upper Chesapeake, the relative importance of tidal volume is increased with respect to model accuracy. The high mesh resolution was included to ensure that the model accurately represented the tidal volume exchanges that naturally occur in the Upper Chesapeake Bay. Additionally, this would allow for future studies of the Upper Chesapeake Bay to be conducted if requested without significant increase to the mesh generation or model run times for this study.

**Boundary Conditions.** Both tidal and historical flow boundary conditions were used for this study. A harmonically derived tidal signature, synthesized from National Ocean Service (NOS) harmonic constituents based on an analysis of historic tides for the Sandy Point, Maryland recording station, was used at the downstream boundary of the mesh. At the upstream end, a constant inflow of 35,000 cfs was used for the Susquehanna River. This value represents an average discharge value for the river at this location based on yearly average data available. Because of the high degree of variability and tidal fluctuations between the

Chesapeake and Delaware Bays, no boundary condition was assigned to the C&D Canal. The tidal flows in the Chesapeake are significantly higher than the flow contributions from the Susquehanna River and the C&D Canal. It was therefore determined that the lack of exact flow value boundary conditions at the Susquehanna and C&D Canal would be a source of error in the overall model results but would not significantly affect the hydrodynamic conditions in the study areas.

The location of the downstream boundary of the mesh was chosen to be the narrow neck of the bay just south of the Chesapeake Bay Bridge and just upstream of the mouth of the Severn River. This location was chosen because it represents a confined part of the bay where the bathymetry and velocity distribution is well defined. In addition, there are no severe lateral gradients across the boundary which would cause numerical instabilities in the model. Finally, there were two NOS tidal recording stations nearby, Sandy Point and Greenbury Point, from which harmonic tidal data could be obtained for the boundary condition. Trial runs of the base condition indicated that using the Sandy Point tidal data produced the most accurate results. Figure 2 depicts the synthesized harmonic tidal data that was used as input for the model study.

A 5-day spring tide was chosen from the synthesized harmonic tidal data from June 23 through June 28, 1994 at half-hour timesteps. This included a 20-hour model spin-up time and four days of the spring tide. The 20 hours of spin-up is necessary to remove the influence of the initial conditions of water surface elevation and velocity, which are initially set to constant values throughout the finite element mesh. Hour 0 of the hydrodynamic study was set equal to 03:00 on 23 June 1994.

The location of the upstream boundary of the mesh in the Susquehanna River was chosen at a location just downstream of the Conawingo Dam which is considered to be the head of tide for the Chesapeake Bay tidal influence on this river. As well, the mesh was extended to the head of tide for all river and streams of significant size and volume in the Upper Chesapeake Bay. The decision to incorporate the portions of the rivers influenced by tidal fluctuations in the bay was dictated by the need to accurately reproduce the tidal volume exchanges mentioned earlier. Since the Susquehanna River represents the only major inflow to the Upper Chesapeake Bay, with the noted exception of the C&D Canal, it was the only upstream inflow boundary condition specified in the model.

## Model Verification

**Procedure.** Very little model adjustment is required to verify numerical models if the governing equations describe the problem, sufficient resolution is used, and the boundary conditions are accurate and meaningful. Indeed, if the mesh is properly constructed and reasonable boundary conditions are used, the remaining adjustment of coefficients should provide only minor variations in the output, given that they were based on real-world phenomena and not numerical expediency.

In RMA-2, only two coefficients can be adjusted in the verification process: elemental Manning's n for roughness and eddy viscosity for turbulence characteristics. Both the scientific literature and a significant amount of experience in verifying numerical models suggest that a case can be made for assigning global Manning's n values based not only on the type of water body modeled and the flow conditions, but also as a function of depth within the model. The values used in this model study are given in Table 1. Initially, slightly differing values were used for the 6-11, 12-17, 18-34, and shipping channel depth categories but sensitivity analyses revealed that the best verification could be obtained with these values.

Element Depth (feet)	Manning's n	Eddy Viscosity (lb-sec/ft <sup>2</sup> )
0-5	0.030	100
6-11	0.018	100
12-17	0.018	100
18-34	0.018	100
Shipping Channels	0.018	100
Shallows near Kent Island	0.035	150

**Table 1.** Eddy viscosity and Manning's n values for specific depth intervals used in modeling study.

Eddy viscosity coefficients are the only other adjustment coefficients used in RMA-2. In theory, they are designed to account for turbulence that is indeed present in the prototype but cannot be modeled unless a more rigorous and significantly more expensive turbulence closure model is used. A common manifestation of using values that are too large is the smearing of velocities to the point of lateral uniformity when lateral gradients in the velocity fields are expected.

A significant amount of experience in both numerical and physical flumes as well as prototype scale problems indicates that, in general, the lower the eddy viscosity value, the better the results. In prototype scale problems of estuaries, it is rare to have stable model results with eddy viscosity coefficients that are too small. For economic reasons most grids are sufficiently coarse to require a certain amount of viscosity to maintain model stability. In most cases, this minimum amount of viscosity for stability is close to that required based on the physics of the problem. All models used today in computational hydraulics contain some amount of viscosity, whether it is supplied manually to the simulation or it is intrinsic to the solution technique. It is not an alarming consideration provided that reasonable values are used. The eddy viscosity values used in this study were isotropic in the xx-, xy-, yx- and yy-directions and are given in Table 1.

The last depth category is specific to the shallow area of the bay located just upstream of Kent Island near the mouth of the Chester River. This region of the numerical model requires special attention for stability reasons. Modeling experience has shown that sudden expansions and contractions, especially when located near to a model boundary condition, can lead to numerical stability problems. Such a condition exists at this location in the bay with the Chester River entering the bay from the East and the Magothy River entering from the West. The problem is further exacerbated by the rapid change in depth on the west side of Kent Island. The shipping channel, over 60 feet in depth in this area, passes near to the shore. The combination of the sudden expansion in the mesh geometry near the tidal input boundary condition and the rapid depth changes near Kent Island required the use of a higher Manning's n and eddy viscosity value for the shallow regions of the mesh in this area.

**Tide Verification Results.** Evidence that reasonable verification procedures were used is shown in the model results. Five verification points were chosen at various locations in the bay for which NOS harmonic synthesis data was available. These stations are located at or near Havre de Grace, Fishing Battery, Pooles Island, Tolchester, and Sevenfoot Knoll (see Figure 3). Figures 4 through 8 give a comparison of model versus harmonic synthesis values for these verification points. Agreement between model and the harmonic tide data is good for all five locations in the bay. Because of the length of the bay, there is a significant lag in tidal phase from downstream to upstream and this is reflected in both model and prototype measurements for these stations. Slight differences in the tide elevations at the lower high and low waters can be explained by the exclusion of the C&D Canal tidal influences. Since the

higher high and low tides were most important for this study, it was deemed more important to accurately capture these fluctuations in the model.

**Velocity Verification Results.** Velocity verification was achieved by using the base condition hydrodynamic modeling results at maximum spring ebb and flood tides in the WES Ship/Tow Simulator as described in the navigation portion of this report.

## Model Results

**Tide Results.** Figures 9 and 10 give a comparison of the base and three plan conditions at the two study areas. An examination of the tidal results from these numerical model runs indicate that there is virtually no difference in phase, amplitude or plane between the base and plan conditions. This was somewhat predictable since the study areas are located in relatively wide portions of the bay where the tide is unlikely to be significantly affected by relatively minor changes in the bathymetry.

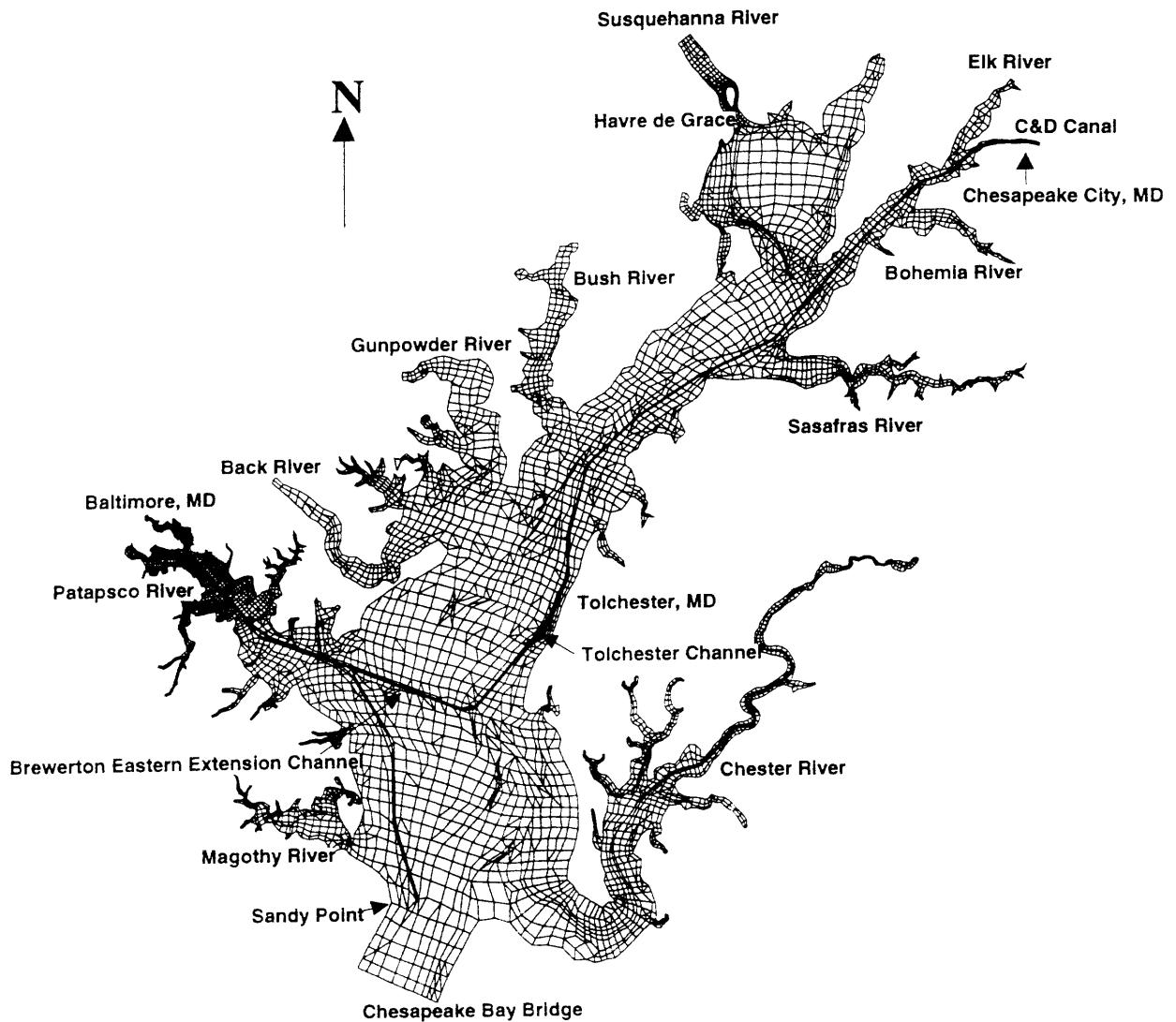
**Velocity Results.** Analysis of the velocity results for the base and plan conditions revealed that there was no difference in the velocity magnitudes or directions for the Brewerton Channel Eastern Extension. As well, at points located just downstream and just upstream of the Tolchester Channel, there was no change in the velocity magnitudes or directions. As expected, there were changes in the channel velocities between the existing and proposed channel portions. However, these velocity changes are small (less than .21 fps) and, as reported in the navigation portion of this report, the velocities were determined to not provide a hindrance to safe navigation of the channel.

## Conclusions

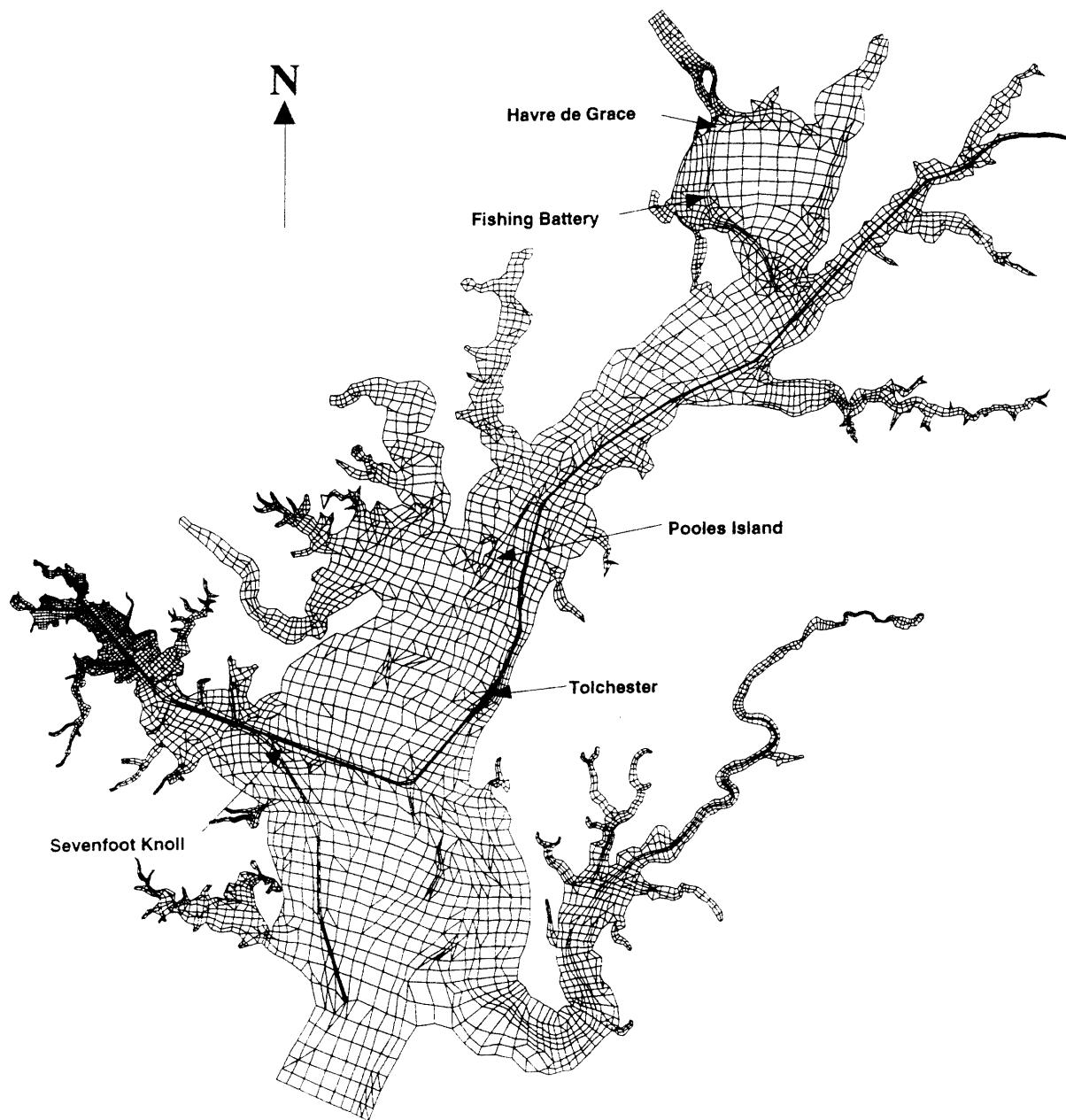
Numerical model simulations of the base and plan conditions in the Upper Chesapeake Bay indicate that the proposed navigation improvements to the Brewerton Eastern Extension and Tolchester Channels will have little effect on tidal circulation in the bay. Base and plan hydrodynamic data sets were produced with the numerical model that were used in the ship simulation and sedimentation portions of this study. The results successfully reproduced the variable current magnitudes and directions in the navigation channel as determined by experienced bay pilots and reported in the navigation phase of this study.

## **References**

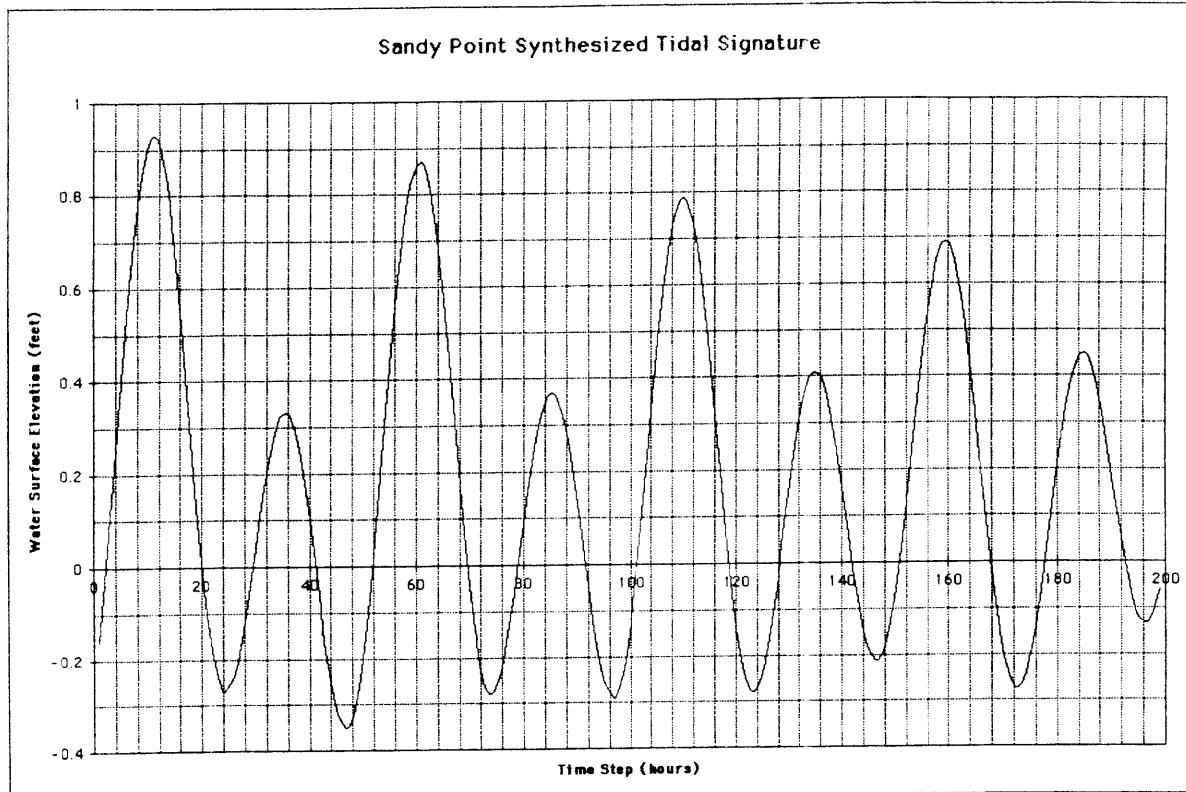
Thomas, W. A. and McAnally, W. H., Jr. (1991). "Users' manual for the generalized computer program system: open-channel flow and sedimentation, TABS-2," Instruction Report HL-85-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.



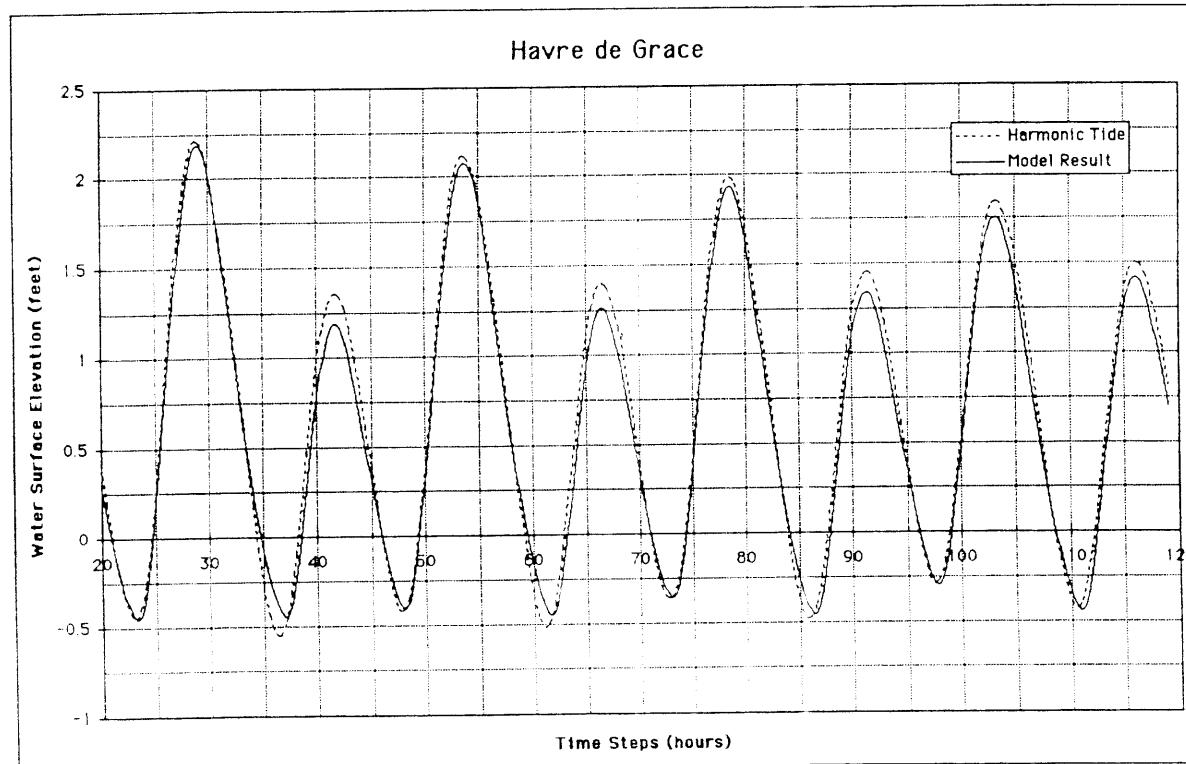
**Figure 1.** Hydrodynamic Modeling Study Numerical Mesh



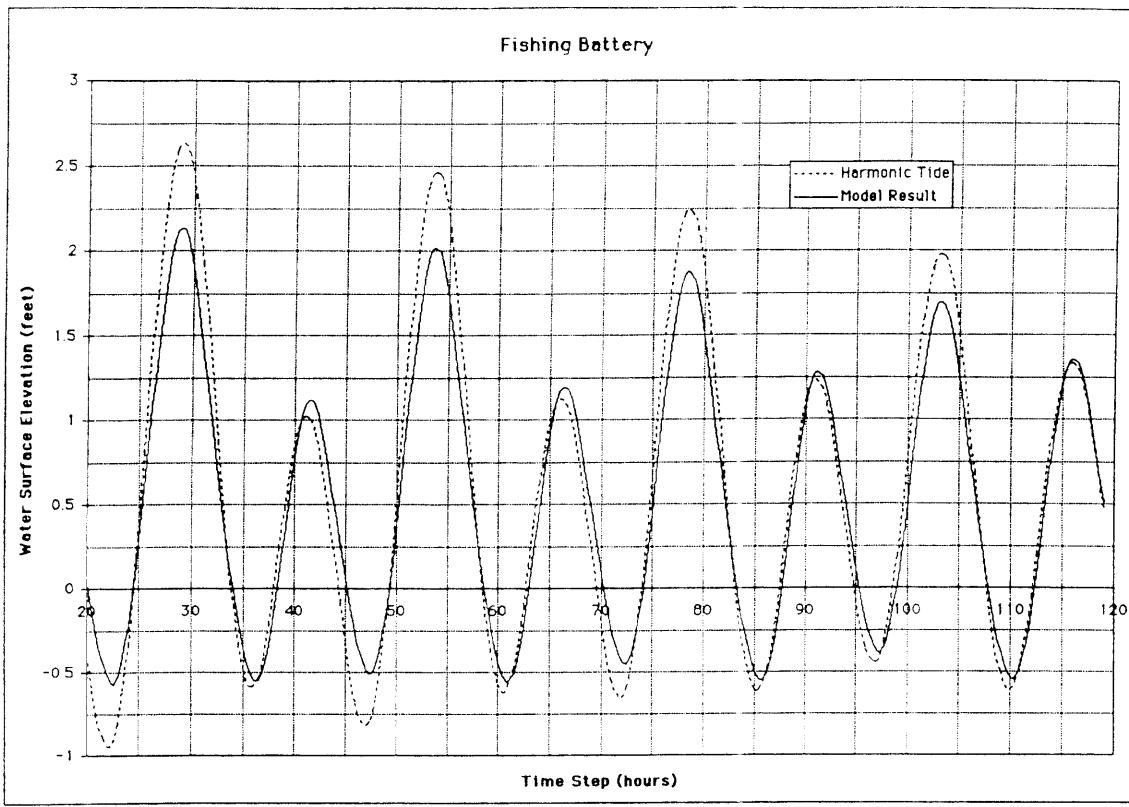
**Figure 2.** Location of Verification Points For Hydrodynamic Study



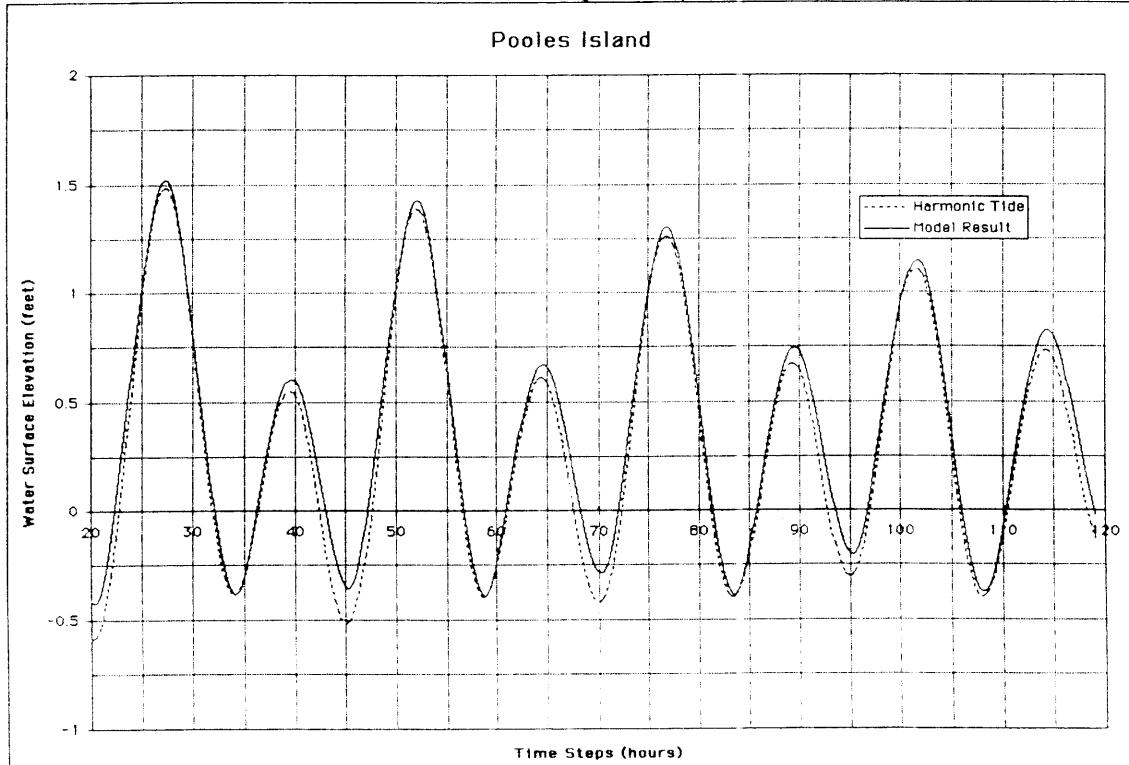
**Figure 3.** Input Tidal Signature Boundary Condition



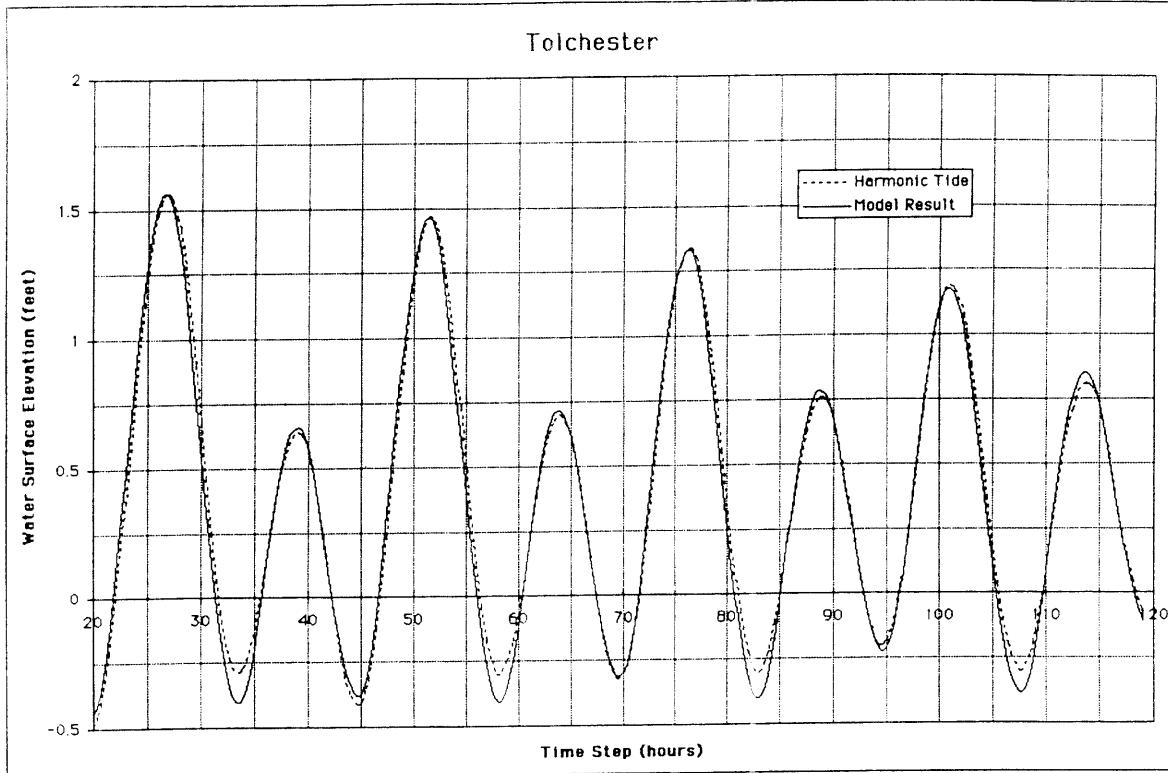
**Figure 4.** Comparison of Synthesized Harmonic Tide To Model Results  
at Havre de Grace



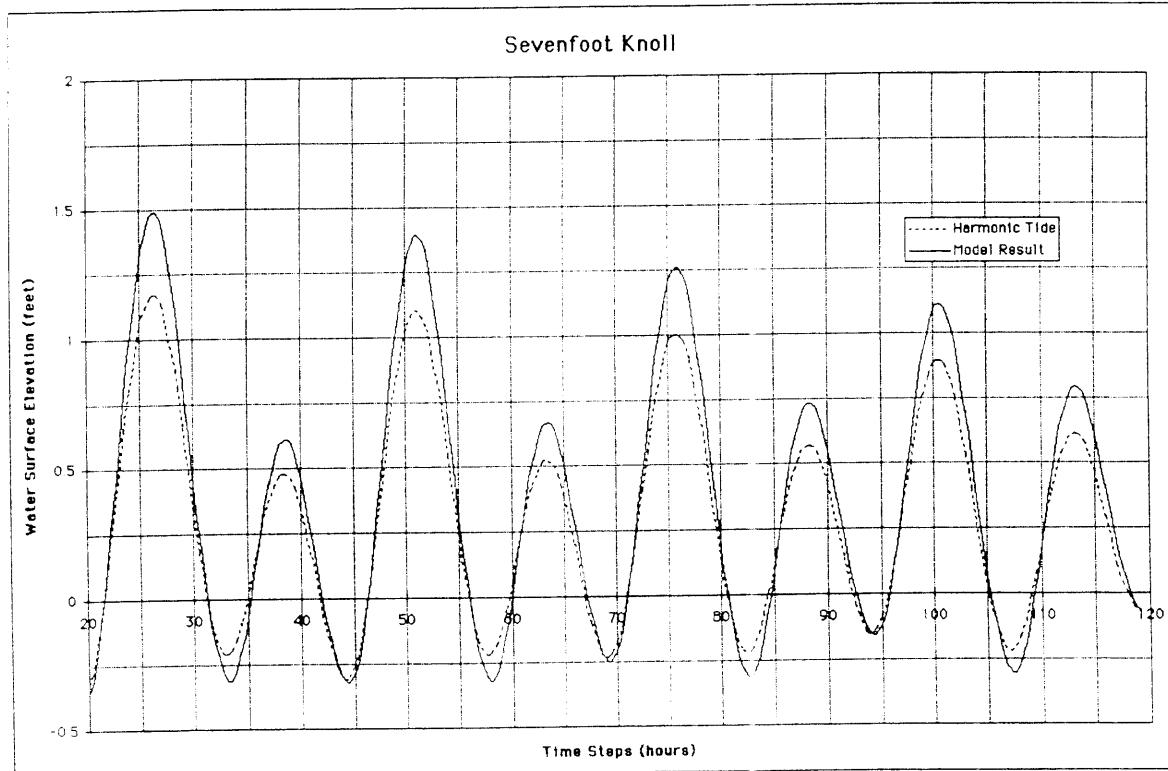
**Figure 5.** Comparison of Synthesized Harmonic Tide To Model Results at Fishing Battery



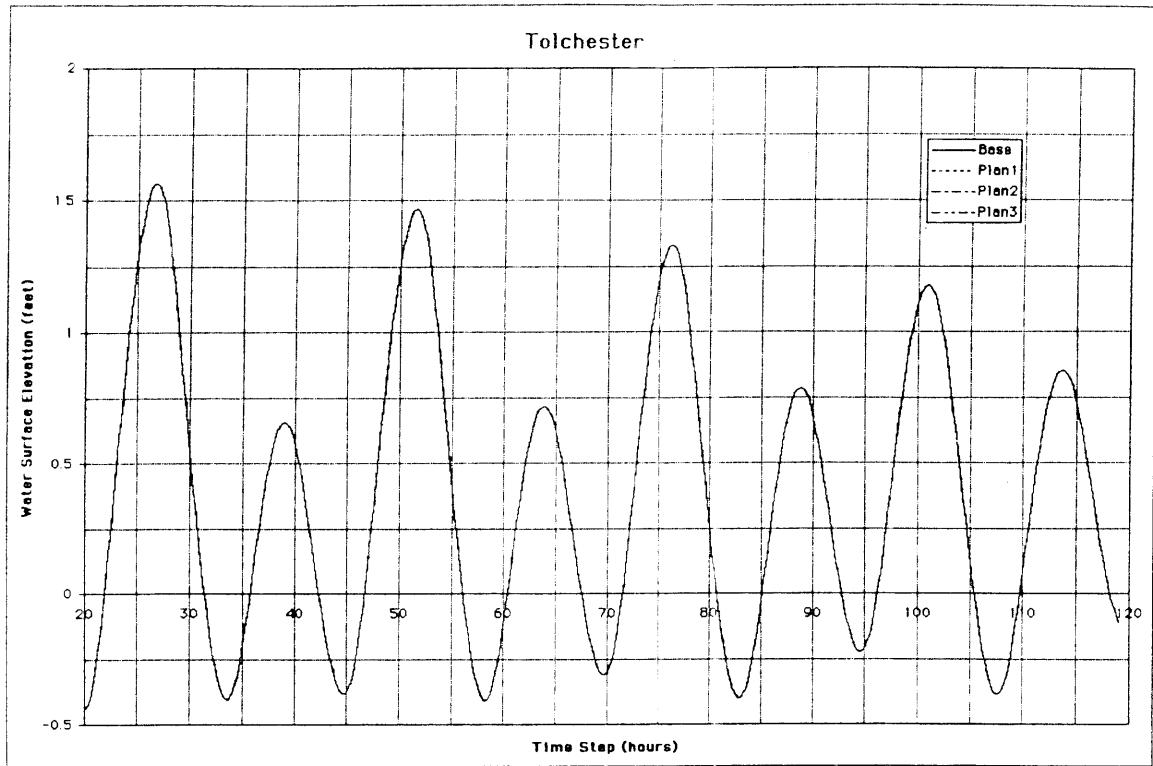
**Figure 6.** Comparison of Synthesized Harmonic Tide To Model Results at Pooles Island



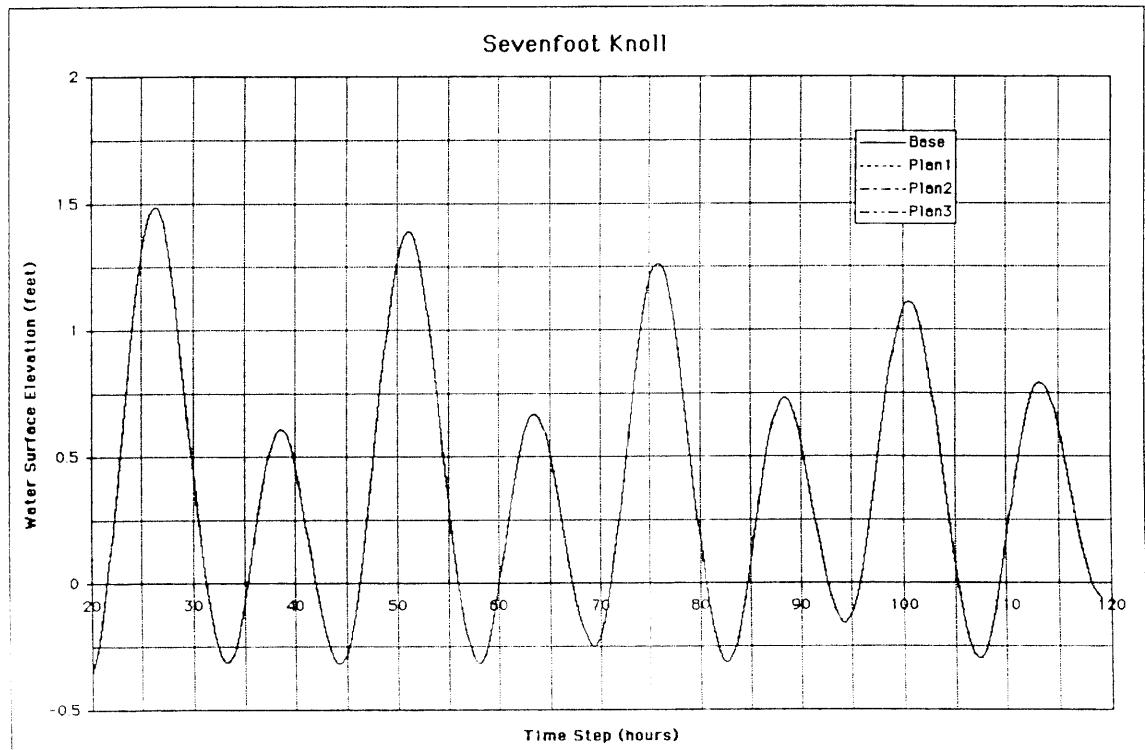
**Figure 7.** Comparison of Synthesized Harmonic Tide To Model Results at Tolchester



**Figure 8.** Comparison of Synthesized Harmonic Tide To Model Results at Sevenfoot Knoll



**Figure 9.** Comparison of Base to Plan Condition Model Results at Tolchester



**Figure 10.** Comparison of Base to Plan Condition Model Results at Sevenfoot Knoll

## APPENDIX B: SEDIMENTATION STUDY

### BREWERTON AND TOLCHESTER CHANNEL MODIFICATIONS

(by Allen Teeter, Chris Callegan, and Claire Livingston)

#### INTRODUCTION

The U.S. Army Engineers District, Baltimore (CENAB), is evaluating improvements to two navigation channels in Chesapeake Bay at the request of the State of Maryland and the Maryland Pilots Association. The U.S. Army Engineer Waterways Experiment Station conducted navigation and sedimentation studies of the existing and proposed channels for CENAB. The channel modifications could potentially affect sedimentation and maintenance dredging requirements. A numerical sedimentation study was therefore performed to gage these possible effects as described in this appendix.

The Brewerton Channel Eastern Extension is a straight channel about five nautical miles long extending across Chesapeake Bay from the approach to Baltimore Harbor. The Tolchester Channel is about six nautical miles long, following the eastern, deep area of Chesapeake Bay. The locations of these channels in Chesapeake Bay are shown in Figure A-1 and A-2.

The Brewerton Channel Eastern Extension has cross currents which can reach over one knot. Pilots restrict the combined beams of meeting vessels to 160 ft. Some large vessels choose the longer route through Swan Point and Craighill Channels (Figure A-2) to avoid the Brewerton Channel Eastern Extension. A widening to 600 ft has been proposed for the Brewerton Channel Eastern Extension, and is evaluated for sedimentation effects in this study.

The Tolchester Channel has an "S-Turn" which requires five course changes in three nautical miles. Navigation difficulties occur here because of a lack of range lights, high currents, and because buoys may become obscured. A channel straightening in the area of the "S-Turn" has been proposed, and is evaluated for sedimentation effects in this study.

This sedimentation study used currents developed for the navigation study, as described in Appendix A. Currents were computed numerically for a number of tidal cycles and used as input to a numerical sedimentation model. The models used in both the hydrodynamic and sedimentation studies were two-dimensional, depth-

averaged components to the U.S. Army Corps' TABS-MD modeling system (Thomas and McAnally, 1985).

#### SEDIMENT CONDITIONS AT THE SITE

Chesapeake Bay covers extensive areas of the Atlantic Coastal Plain that consists of bedrock overlain by thick sequences of sand, silt, and clays. Deposits dip seaward and form the continental shelf. While bedrock outcrops near Baltimore, bedrock is 600 m deep at Cape Henry in the southern portion of the Bay. Sea level fluctuations over geological time have caused deep erosion and channel cutting followed by sediment filling. The present relatively high sea level stand has flooded the former river valleys to create the Chesapeake and other Bays. Sediment filling was first by sand and gravel deposits and finally by soft clays and silts (CENAB 1995). Much of the sediment filling in the upper Chesapeake Bay occurs during rare, high river floods (Schubel 1984).

Brewerton Channel Eastern Extension sediments were found in 1960's and 1985 cores to be predominantly (dark) grey silty clay (CH) with minor amounts of clayey silt, organic clayey sand, sandy clay, and organic clayey silt (CENAB 1995). The Tolchester Channel had predominantly black organic silt (MH) with minor amounts of organic silty clay and silt indicated in 1960's cores. Surficial samples were mainly black organic clayey silt (MH).

During normal conditions, sediment is mobilized and moved around the bay by wind waves and tidal currents. Sanford (1993) observed turbidity, salinity, wave height, temperature, and bottom currents at a 3.5-5.5-m-deep dredged material disposal site in upper Chesapeake Bay during the winters of 1990 and 1991. Halka et al. (1994) also studied resuspension of sediments at a disposal site in northern Chesapeake Bay. The studies agreed that winter storms caused resuspension and suspended particulate concentration peaks 3-5 times higher than normal maximum tidal currents caused. Background suspended material concentrations varied inversely with salinity and directly with the flow of the Susquehanna River, indicating that river inflow is important to these levels.

Typical background concentrations of total suspended particulate (TSP) were 0-8 mg/l during September 1991, 2-18 mg/l for September 1992. Resuspension peak values of TSP were 5-25 and 35-45 mg/l for tides and storms, respectively. During Tropical Storm Danielle in September 1992, TSP values reached 60-80 mg/l, and after the storm values climbed to 120 mg/l. These data are representative of normal

background and resuspension levels exclusive of dredged material resuspension.

#### CHANNEL DREDGING REQUIREMENTS

Both the channel dimensions and maintenance dredging requirements for Tolchester and Brewerton Extension Channels have changed over the years. Brewerton Channel Eastern Extension was constructed to 27-ft by 400-ft in 1948, and enlarged to 35-ft by 450-ft in 1988. A section was widened to 600-ft wide in 1991. Advanced maintenance dredging to 37 ft was performed in the Brewerton Channel Eastern Extension in 1992. Figure A-3 shows annual dredging values computed by averaging dredging volumes over the intervals between dredgings

Tolchester Channel was constructed to 35-ft by 450-ft in 1968 and enlarged to 35-ft by 600-ft in 1981. Minor widening of the turns and advanced maintenance dredging was performed to a depth of 37 ft in 1992. Figure A-4 shows the average annual dredging per year.

Because of the recent new-work dredging and advanced maintenance on both channels, it is difficult to estimate current annual dredging requirements with certainty. New-work often causes channel and side-slope adjustments over a period during which maintenance dredging is abnormally increased. New-work dredging has been performed in both channels during the late-1980's and 1990's, and apparently insufficient time has passed for the new channel geometries to stabilize with respect to maintenance dredging.

The Brewerton Extension was apparently not maintained between 1971 and 1986, and average annual dredging requirement was merely 22,000 cu yds per yr. Annual average dredging was computed as the average over the years between successive dredgings, as described earlier, since maintenance was not required every year. Maintenance dredging was required three times between 1987 and 1995, with an average of 419,000 and standard error of 62,000 cu yds per yr, over this period.

Tolchester dredging increased from an average of 27,000 cu yds per yr for the period 1969-1980, to 215,000 cu yds per yr for 1982-1986 after channel enlargement from 450-ft to 600-ft width in 1981. Since 1987 the channel has been maintained twice and maintenance requirements have averaged 95,000 cu yds per yr.

## SEDIMENT MODEL ANALYSIS

For this study, the numerical finite-element sedimentation model SED2D (Roig et al. 1996) was implemented using the same numerical mesh as, and results from, the hydrodynamic modeling effort described in Appendix A to predict the erosion, transport, and deposition of fine sediments in the system. Figure A-5 shows the model mesh. The sediment model SED2D requires information on the distribution of settling, erosion, and depositional properties in the system. Initial and boundary suspended sediment concentrations are also required and were set to values cited earlier for tidal resuspension conditions.

The SED2D model uses a layered bed structure to characterize the density and erodibility horizontally and with depth in the bed. Erodibility of the bed depends on the threshold or critical shear stress for erosion of the material, and an erosion rate constant. The erosion threshold controls the level of shear stress at which erosion begins, and the erosion rate constant controls how rapidly sediments erode with shear stress in excess of the threshold value. For a certain erosion rate (mass per unit area), the model computes the change in bed elevation based on the dry density of the bed layers.

The underlying assumption of the modeling approach was that sediments are resuspended periodically by storms, are transported around the system, and then redeposit. As described earlier, wave resuspension during storms has been found to produce much more sediment resuspension than produced by tidal currents. Instead of using storm conditions, the same effect was produced in the model by imposing initial conditions such that sediment would be resuspended during a high spring-range tide early in the model simulations. The sediment model was operated over a spring tide to resuspend bed material then over a sequence of tides of varying, but lesser amplitudes, which transported sediment around the system and redeposited it during times of weaker tidal currents.

The first phase of the modeling was to adjust sediment parameters in the model. These adjustments were made based on experience and several dozen sensitivity model runs each performed over four tidal cycles. Model results were compared to shoaling rates by extracting bed elevation changes and model element areas from model result files. Deposited sediment volumes were summed over the model elements in the study channels and normalized to annual shoaling rates. The final adjusted sediment input data as they

appeared in the model input file are shown in Figure A-6.

After the model adjustment phase, model runs were performed for ten-tidal-cycle periods, existing and plan conditions, using the same sediment characteristics. Model shoaling for the Brewerton Extension and Tolchester base-condition channels was 76,940 and 74,235 cu yds per yr, respectively. For comparison, Tolchester Channel maintenance dredging has fallen since after the channel enlargement of 1981. The most recent Tolchester dredging (1994) was 145,700 cu yds for a 2-yr period or about 73,000 cu yds per yr. The Brewerton Channel was enlarged in 1990-91, since then maintenance dredging has been extraordinarily large compared to previous requirements. Over the years 1971-86, Brewerton Channel required only 22,000 cu yds per yr compared to Tolchester Channel 1969-80 requirements of 27,000 cu yds per yr. We therefore assume that Brewerton Channel Eastern Extension maintenance dredging has been artificially increased as a result of the channel enlargement, as mentioned in a previous section, and anticipate that it will decrease over time. The model base-channel result of 76,940 cu yds per yr appears to be reasonable.

The model was deemed to have reproduced present base-channel shoaling conditions adequately. Comparisons between base and plan channel conditions were made based on percentages of the base channel shoaling rate.

#### MODEL RESULTS AND DISCUSSION

The hydrodynamic model predicted that currents in the Brewerton Channel Eastern Extension would be unaffected by the widening to 600 ft. The sediment model results reflected those of the hydrodynamic model. Shoaling per unit channel area was the same in the model for existing and plan conditions. The increase in maintenance dredging was estimated to be about 20 percent, based on the additional area of the proposed channel.

Modification to the Tolchester Channel included straightening the "S-Turn" section of the channel as previously described. Sediment model runs were performed with the proposed straightened section along with the following plan variations: (1) the existing channel curve left intact, (2) the existing channel curve with a short plug installed, and (3) the existing channel curve completely filled in.

The sediment model predicted that sedimentation in the channel section south of the "S-Turn" channel section would be unaffected by

the channel straightening. Most of the required maintenance dredging has been performed in the "S-Turn" channel section and the model shoaling was also greatest in this section.

The proposed straightened Tolchester Channel section shoaled more slowly than the existing curved section in the model. The overall reduction for plan variations (1) and (2) described above were estimated to be 23 and 18 percent, respectively. The reduction for plan variation (3) was markedly greater, as the straightened channel section became self-maintaining (or actually slightly erosional). The overall reduction for plan variation (3) was 59 percent.

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Halka, J.P., Sanford, L.P., and R.A. Ortt, Jr. 1994. "Resuspension Studies Conducted on Dredged Sediments placed in Area G-South," File Rpt. 94-3, Depart. Natural Res., Maryland Geological Survey.

Roig, L.C., et al. 1996. "A User's Manual For, SED2D-WES, A Generalized Compute Program for Two-Dimensional, Vertically Averaged Sediment Transport," Draft User's Manual, Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

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Sanford, L.P., Panageotou, W., and J.P. Halka. 1991. "Tidal resuspension of sediments in northern Chesapeake Bay," Marine Geol., Vol. 97, pp. 87-103.

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Figure A-1. Channels near the approach to Baltimore Harbor.

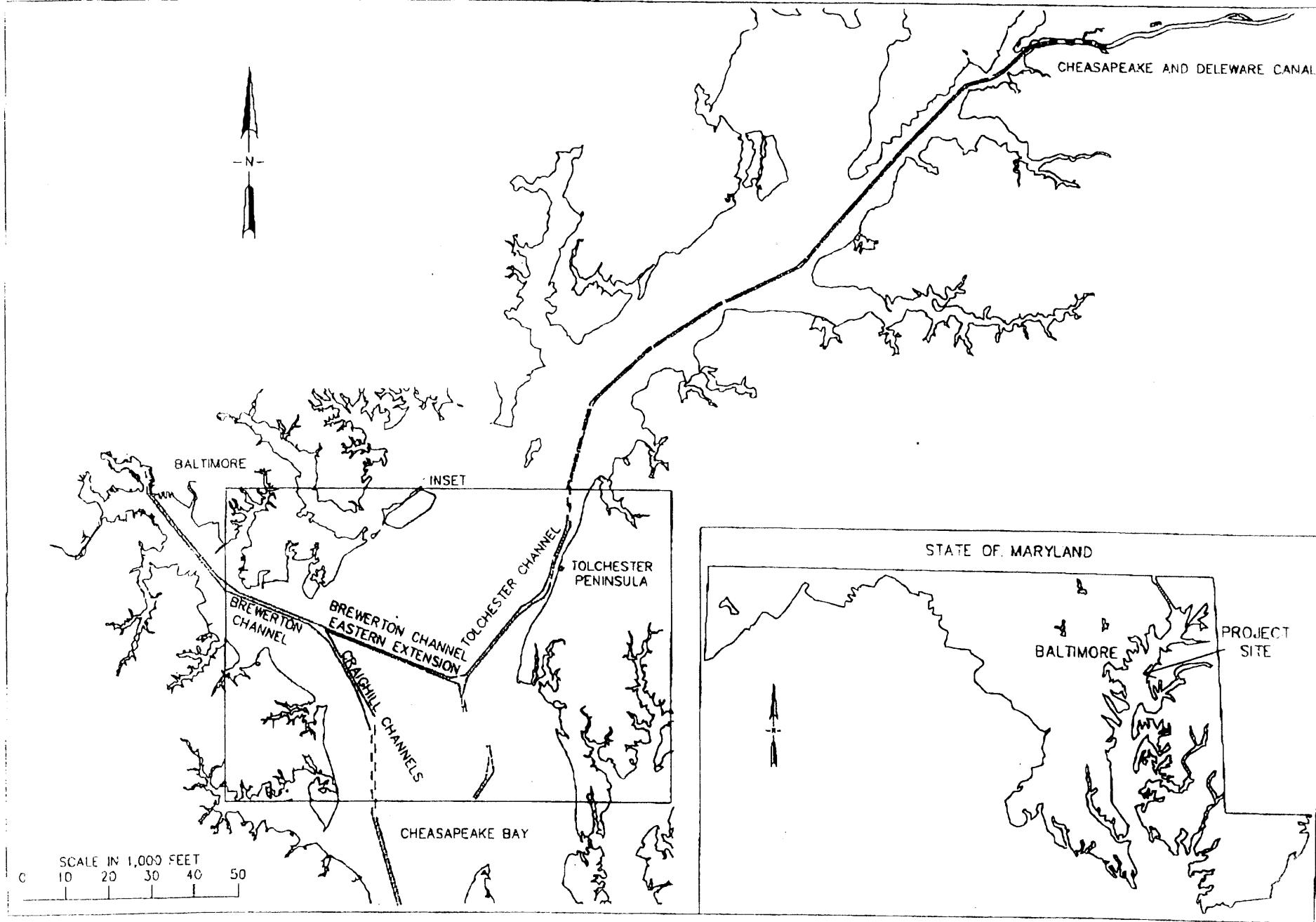
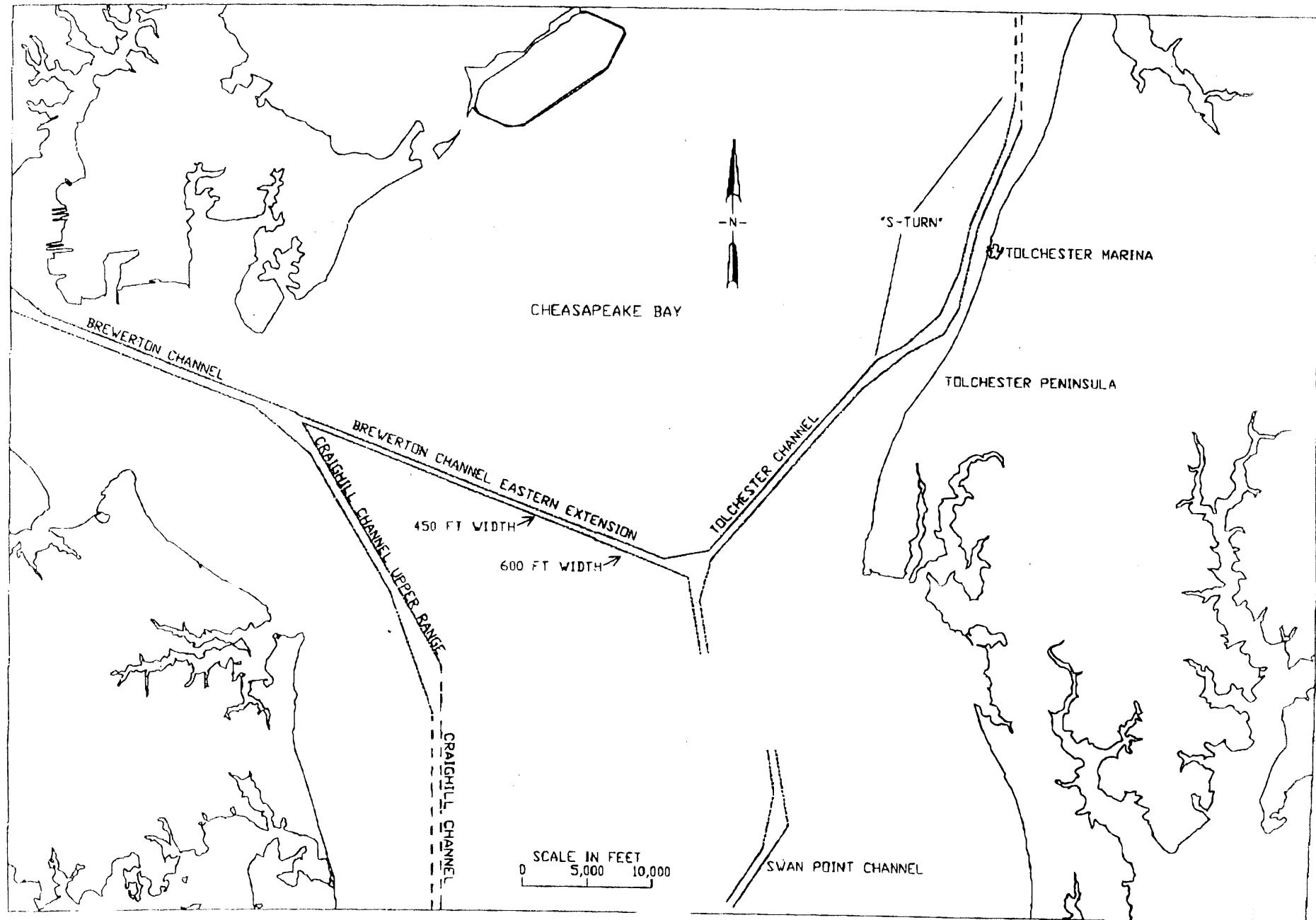


Figure A-2. Details of the study channels.



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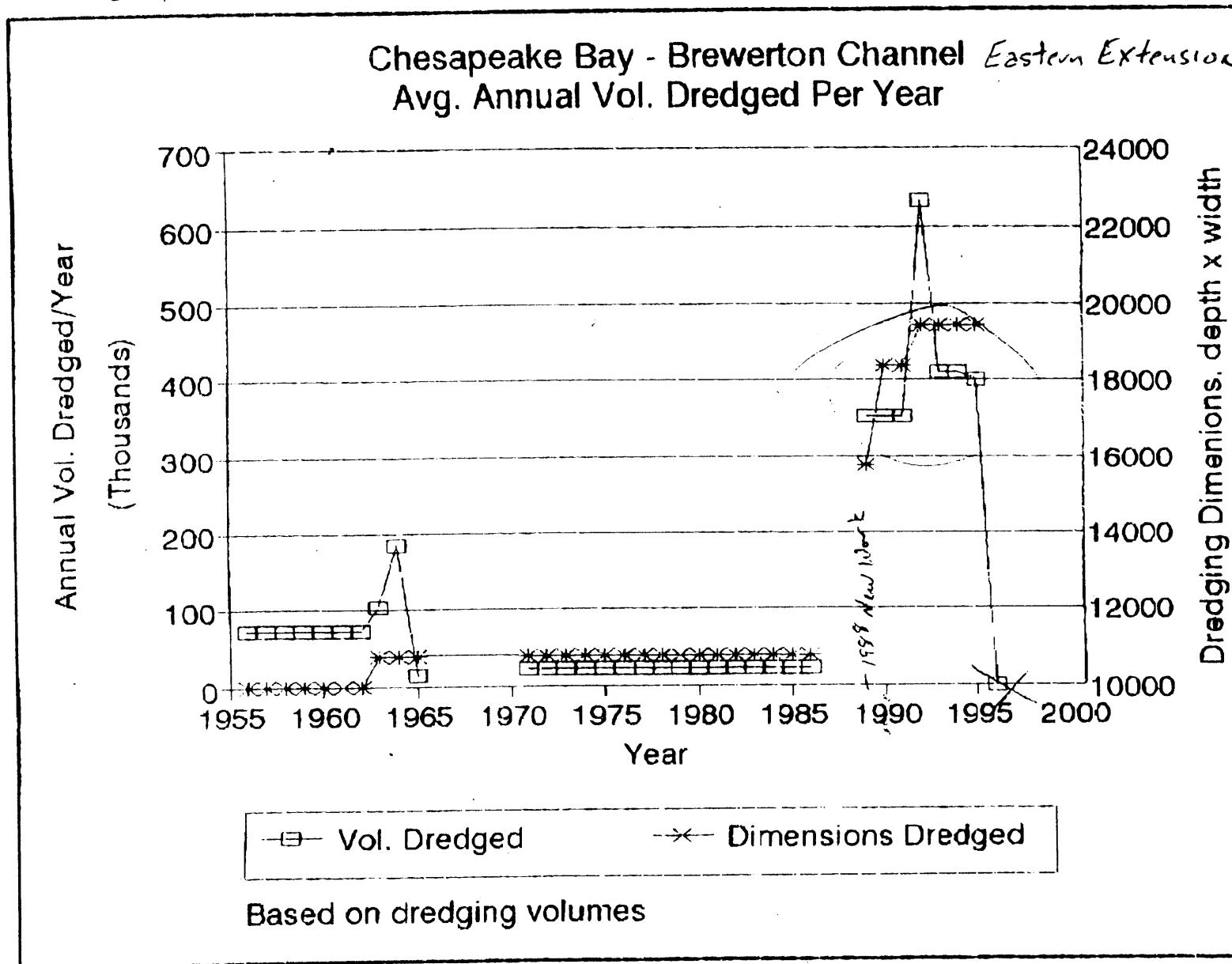


Figure A-3. Dredging and channel area history for Brewerton Channel Eastern Extension.

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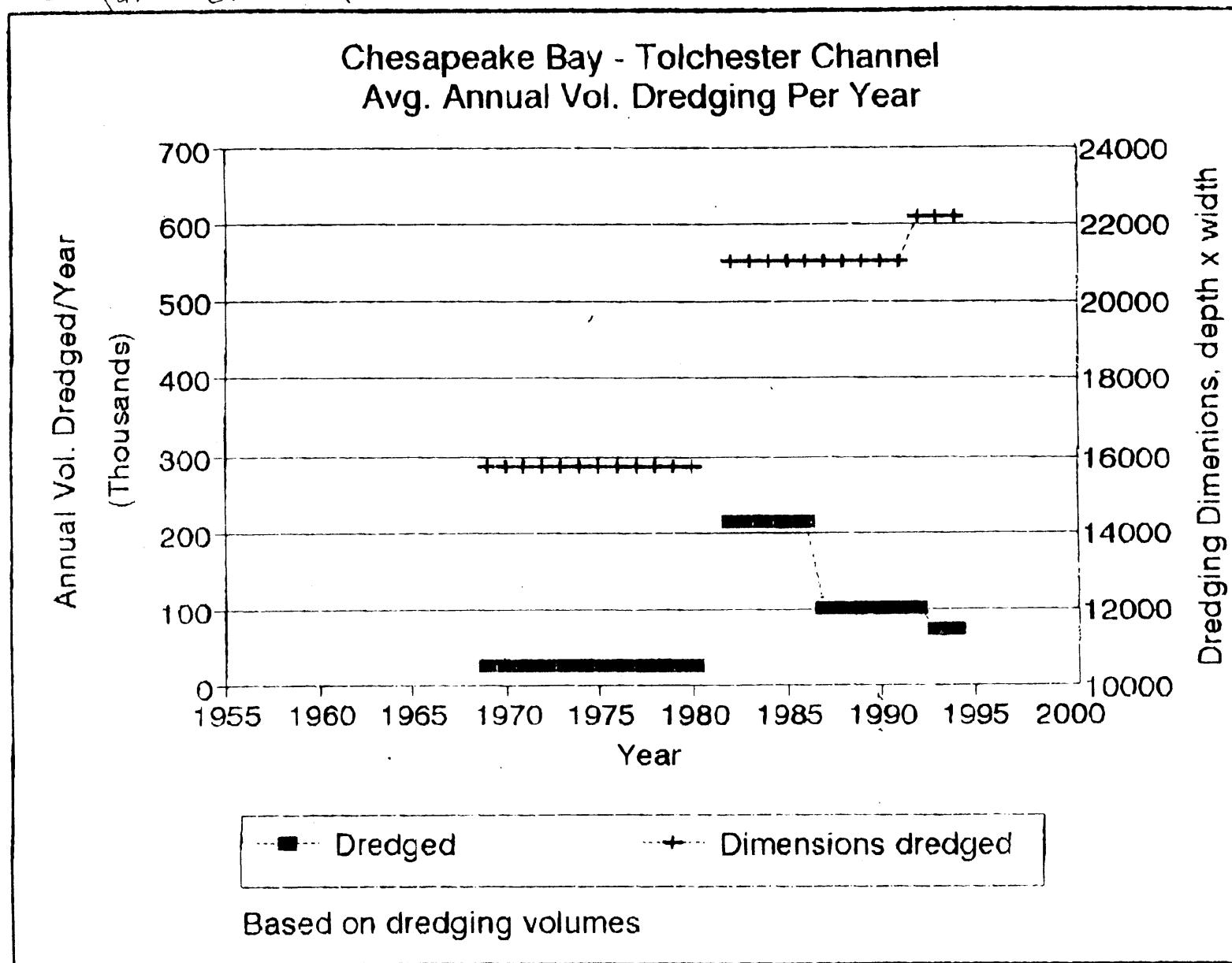


Figure A-4. Dredging and channel area history for Tolchester Channel.

# Tolchester Numerical Mesh

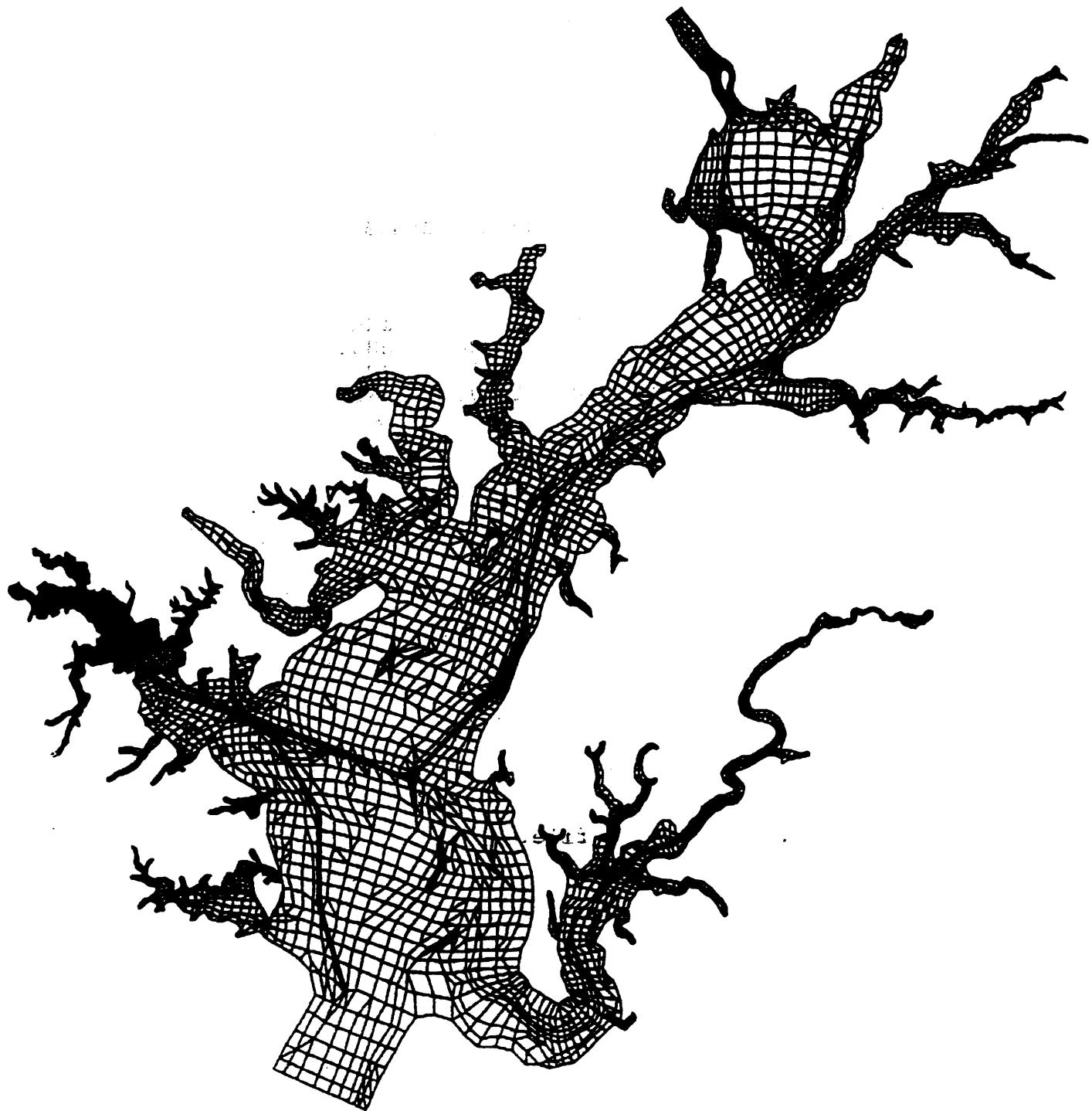


Figure A-5. Numerical mesh.

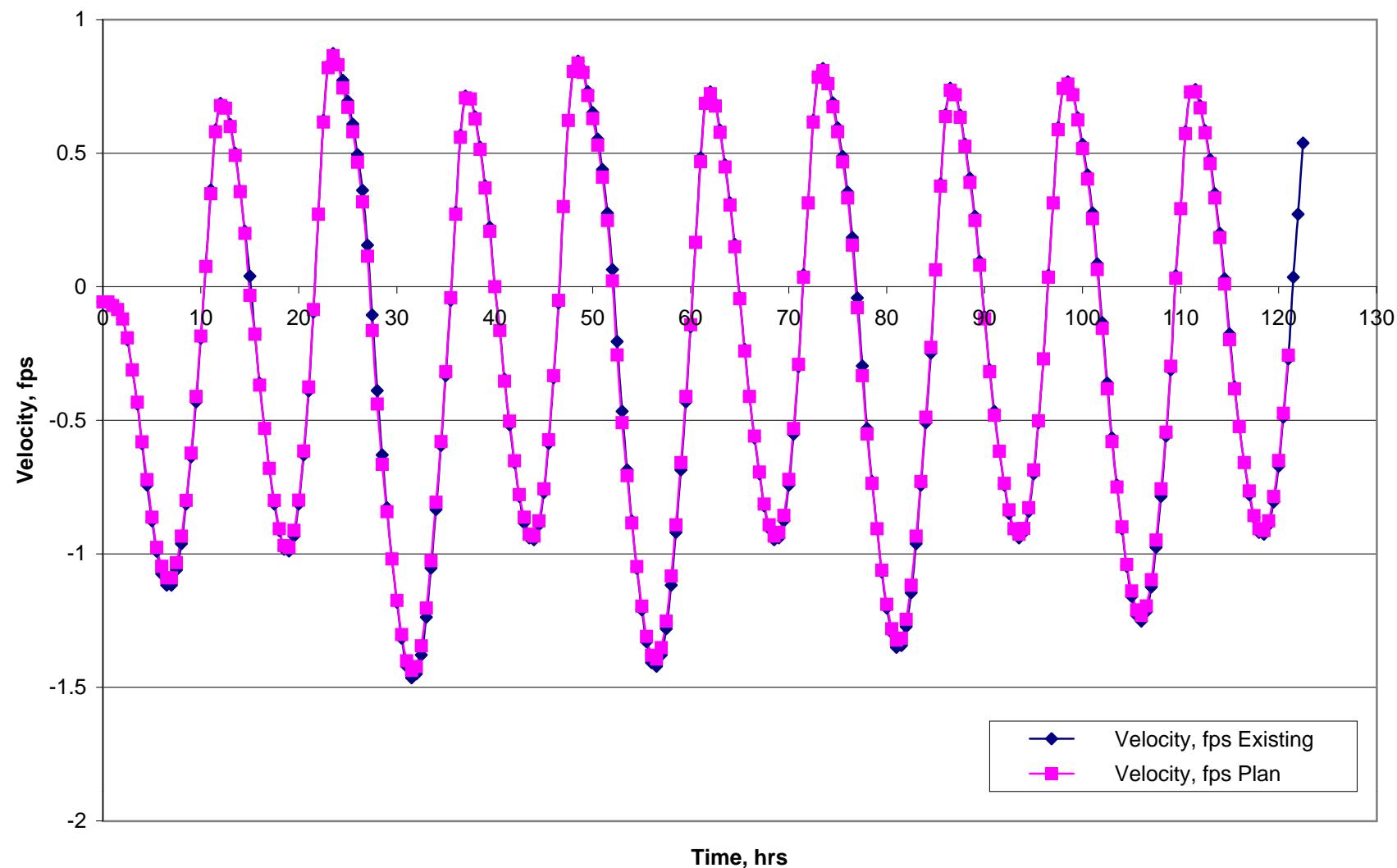
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T1      sed2d.centralthot 100
T2      S1
T3      ST
$L1    10 200000000 0 0 0.000
$L2    15 0 0 75 35.45 0.000
$M     3   8 0.000
TR 0 12 0       0 0.000 0.000
SI 0           0 0.000
GC 10 11 88 14 0.19 0.24 29
GC 34 39 44 49 0.000
GC 6 24582 24584 24587 24590 24593 24596
CC 1 4 .12 .327 .000001
TZ 329 0.5 164 164
TT 166
CI 1 0.008 0.49 0.0006 999.0 1000. 144. 244.
CCI 2 0.01 0.82 0.002 999.0 1000. 288. 288.
ICI 3 0.05 0.96 0.002 999.0 1000. 290. 290.
LCI 4 0.10 2.64 0.008 999.0 1000. 340. 340.
CL 1 1 4 -1 0.000
CL 1 2 3 -1 0.000
CL 1 3 2 -1 0.000
CL 1 4 1 -1 0.000
FT 1 16
HS 2
HN 1 0.0237 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000
ED 1 35 35 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000
IC 1 0.010 0.000 0.000 0.000 0.000 0.000 0.000 0.000
WC 1 0.00005 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000
WF 0
BCL 1 .024 0.000 0.000 0.000 0.000 0.000 0.000 0.000
BCL 2 .045 0.000 0.000 0.000 0.000 0.000 0.000 0.000
END

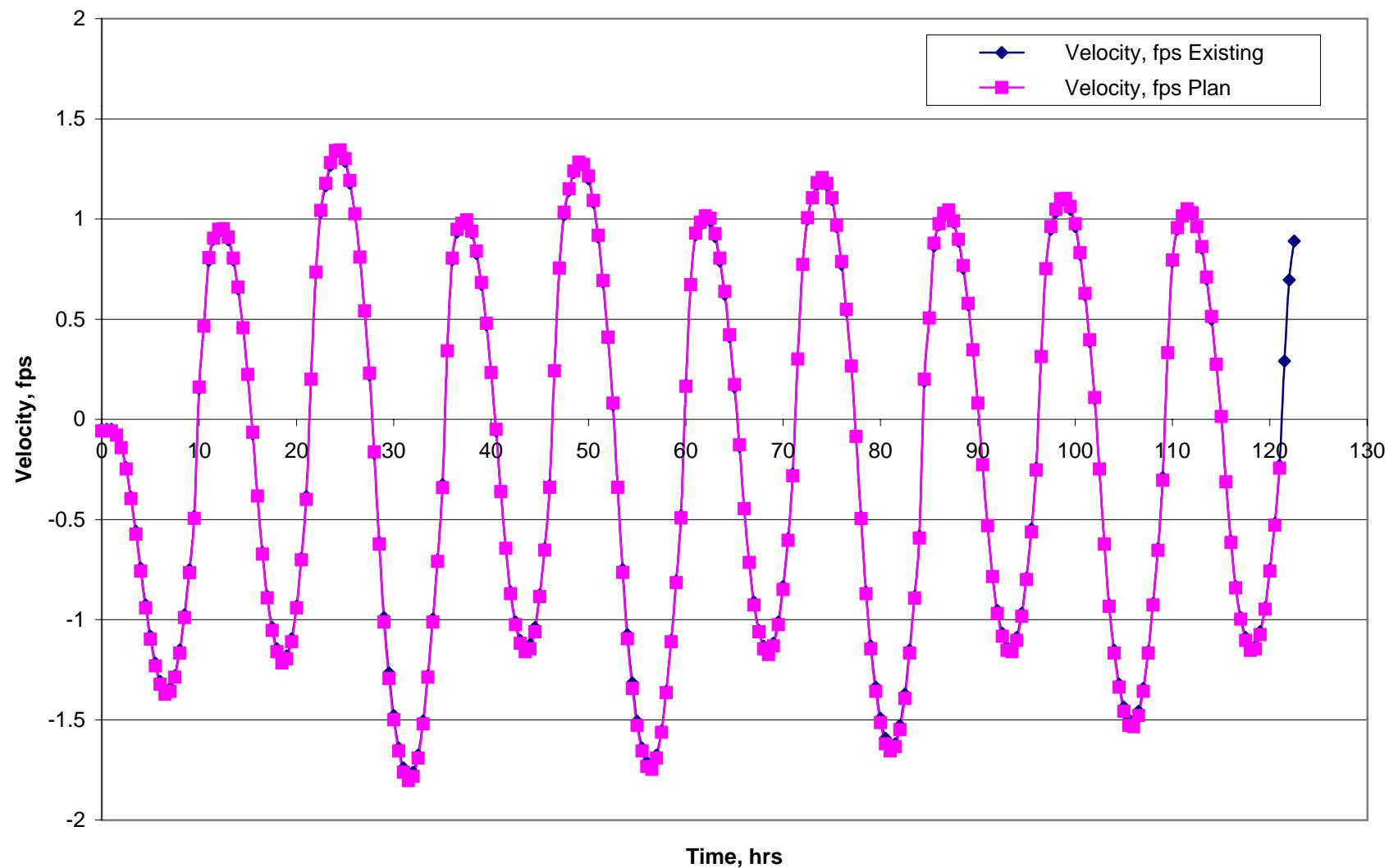
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**Figure A-6.** SED2D input file.

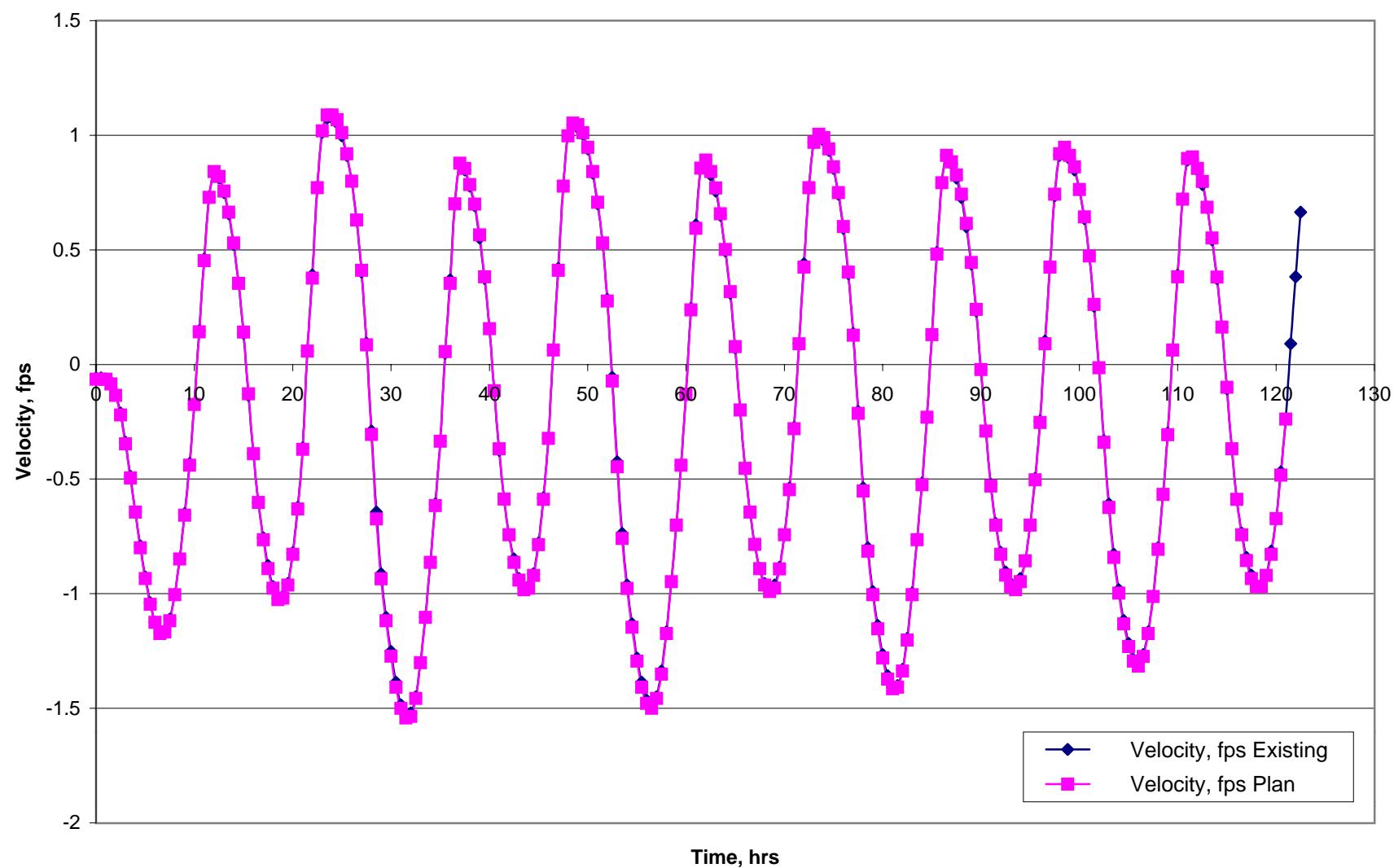
**Node 4586**  
**1520589, 555144.9**



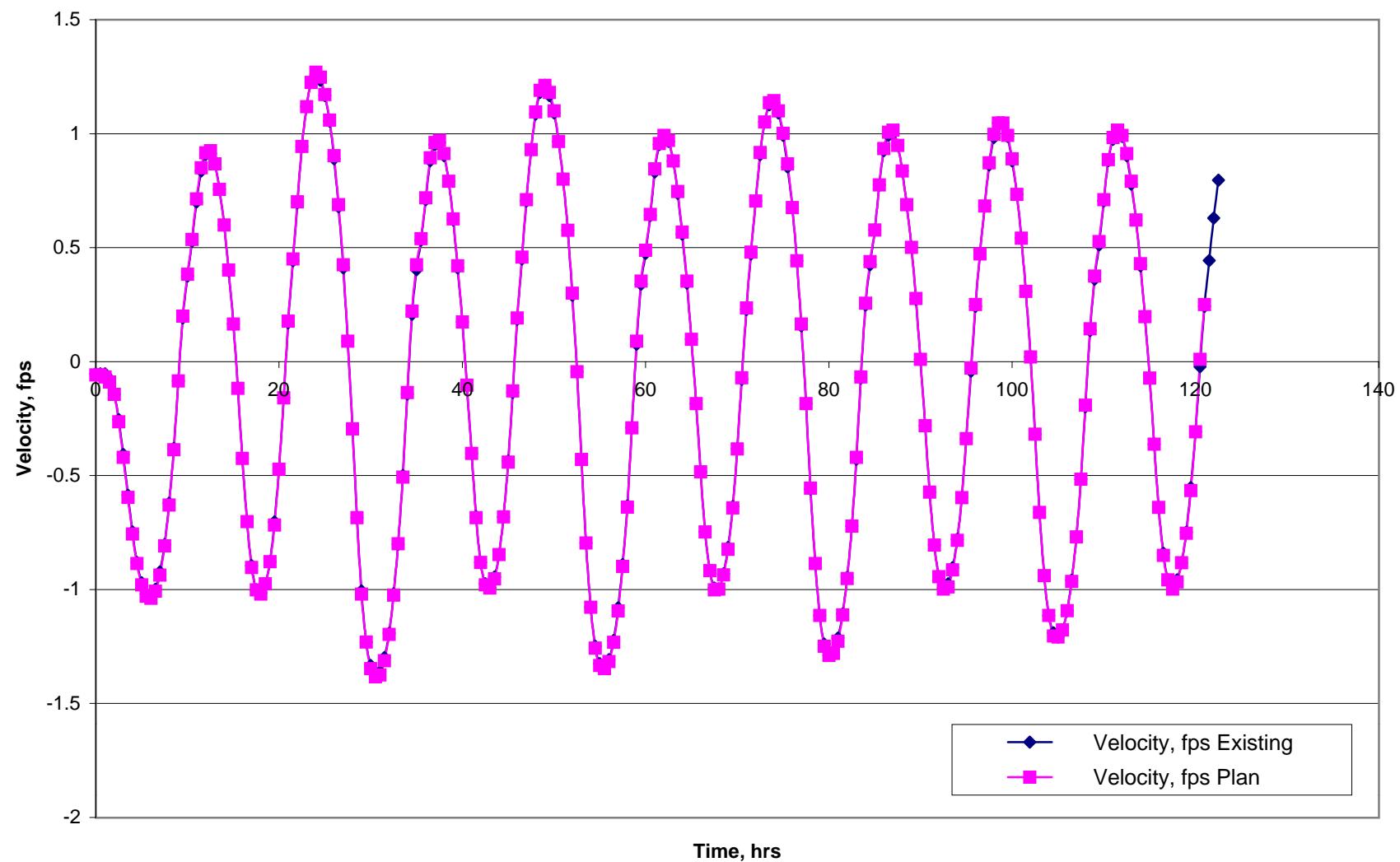
**Node 4057**  
**1518032, 552997.6**



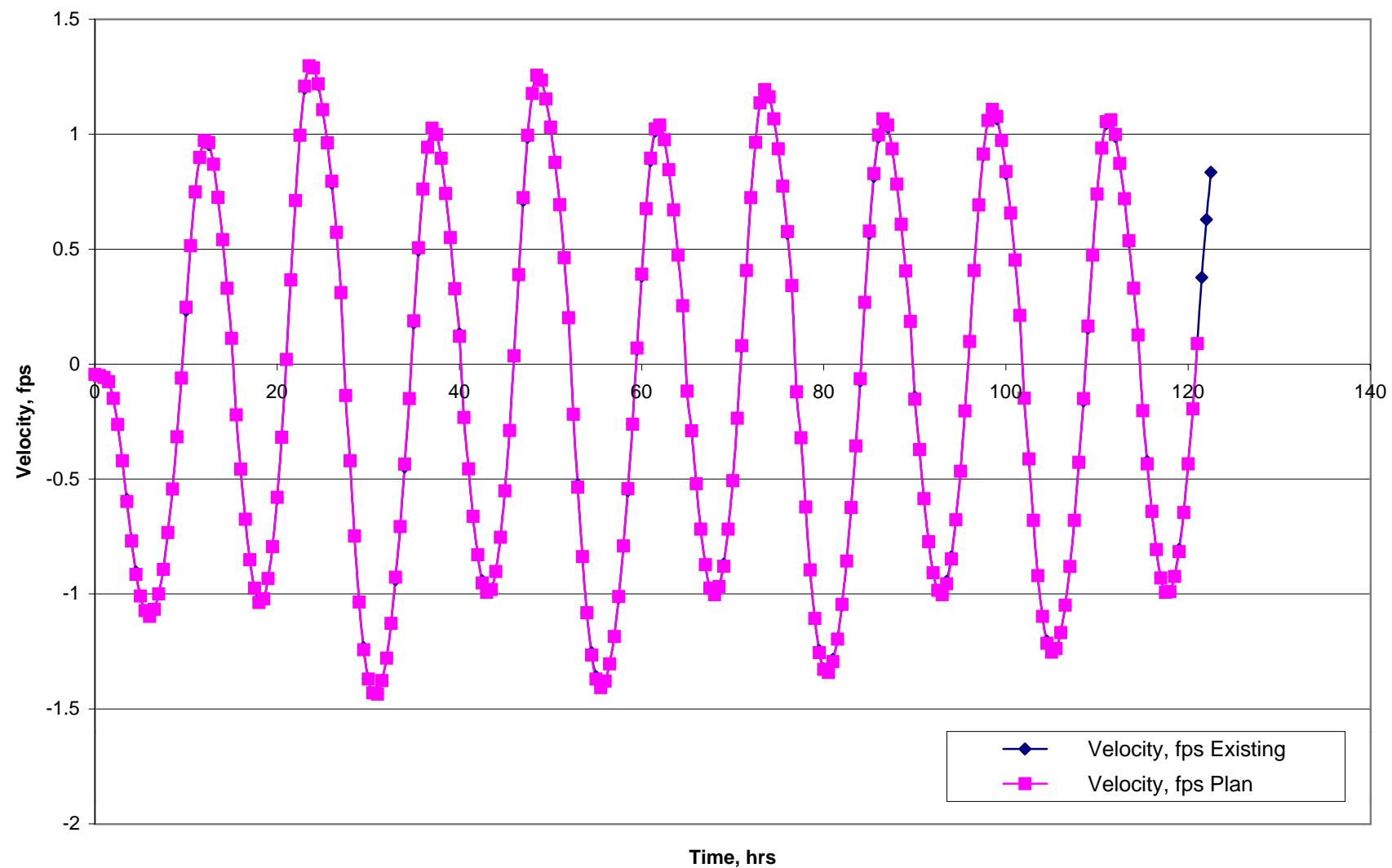
**Node 4300**  
**1519310, 554071.3**



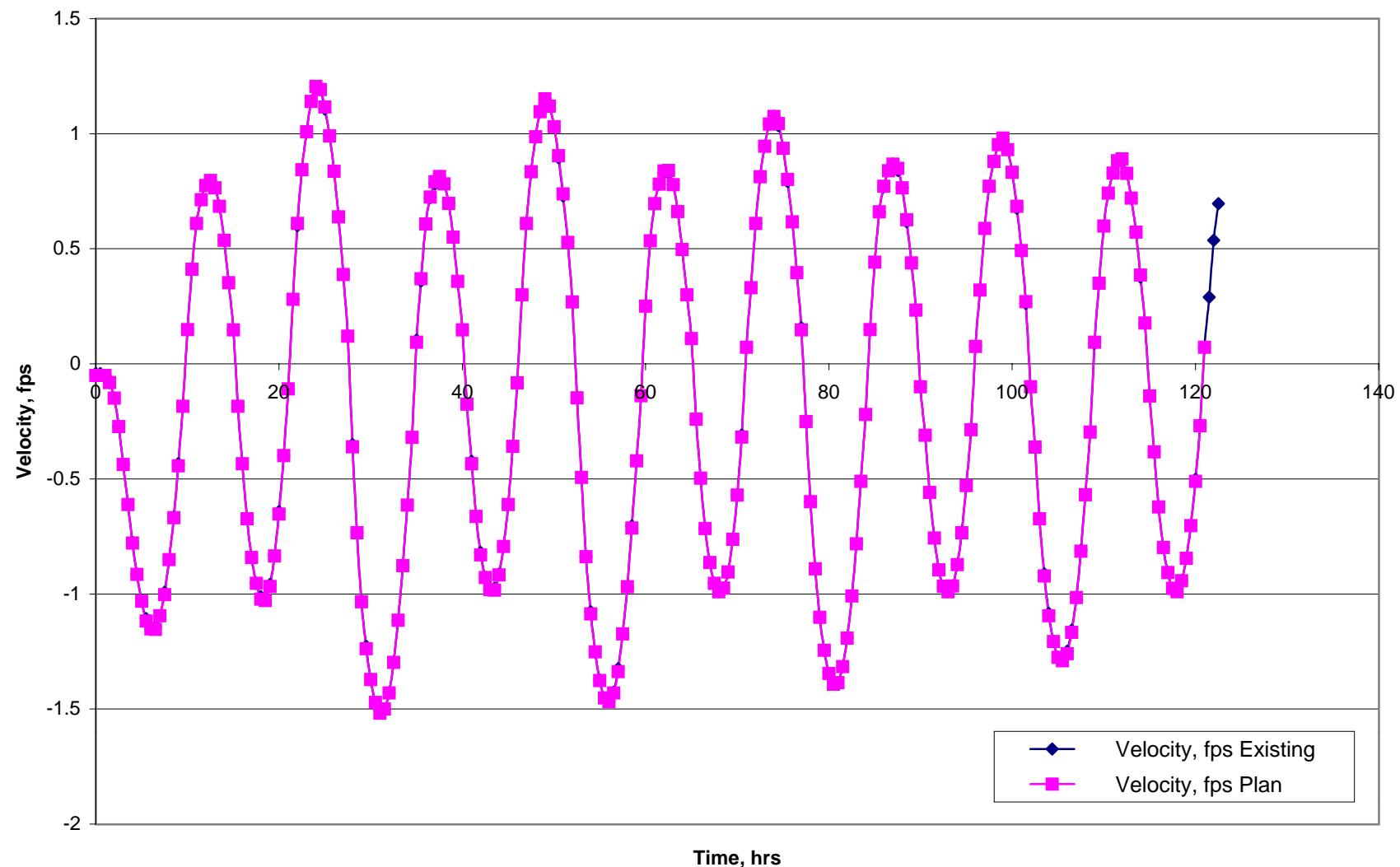
**Node 3814**  
**1516745, 550582.4**



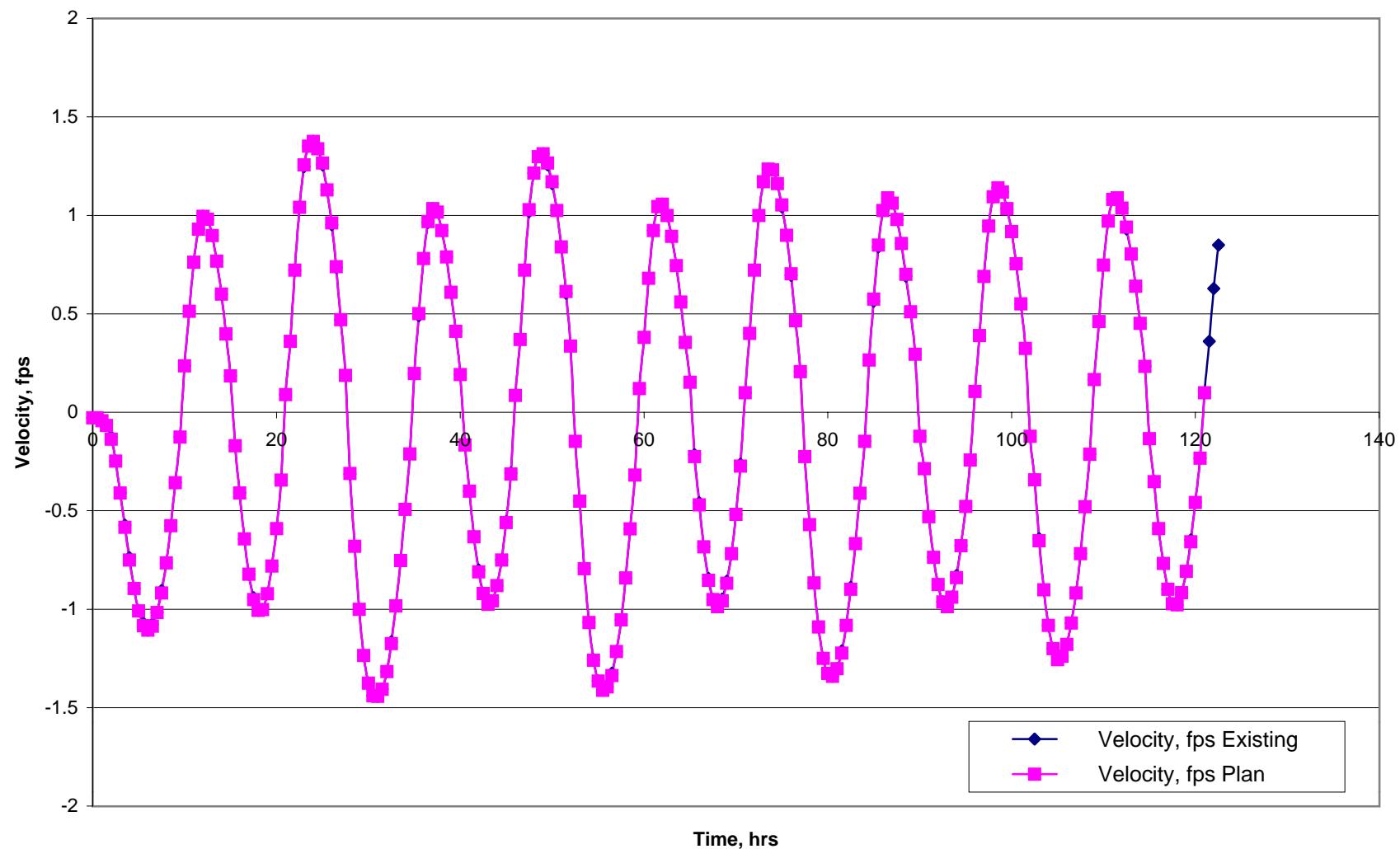
**Node 3290**  
**1514465, 545904.5**



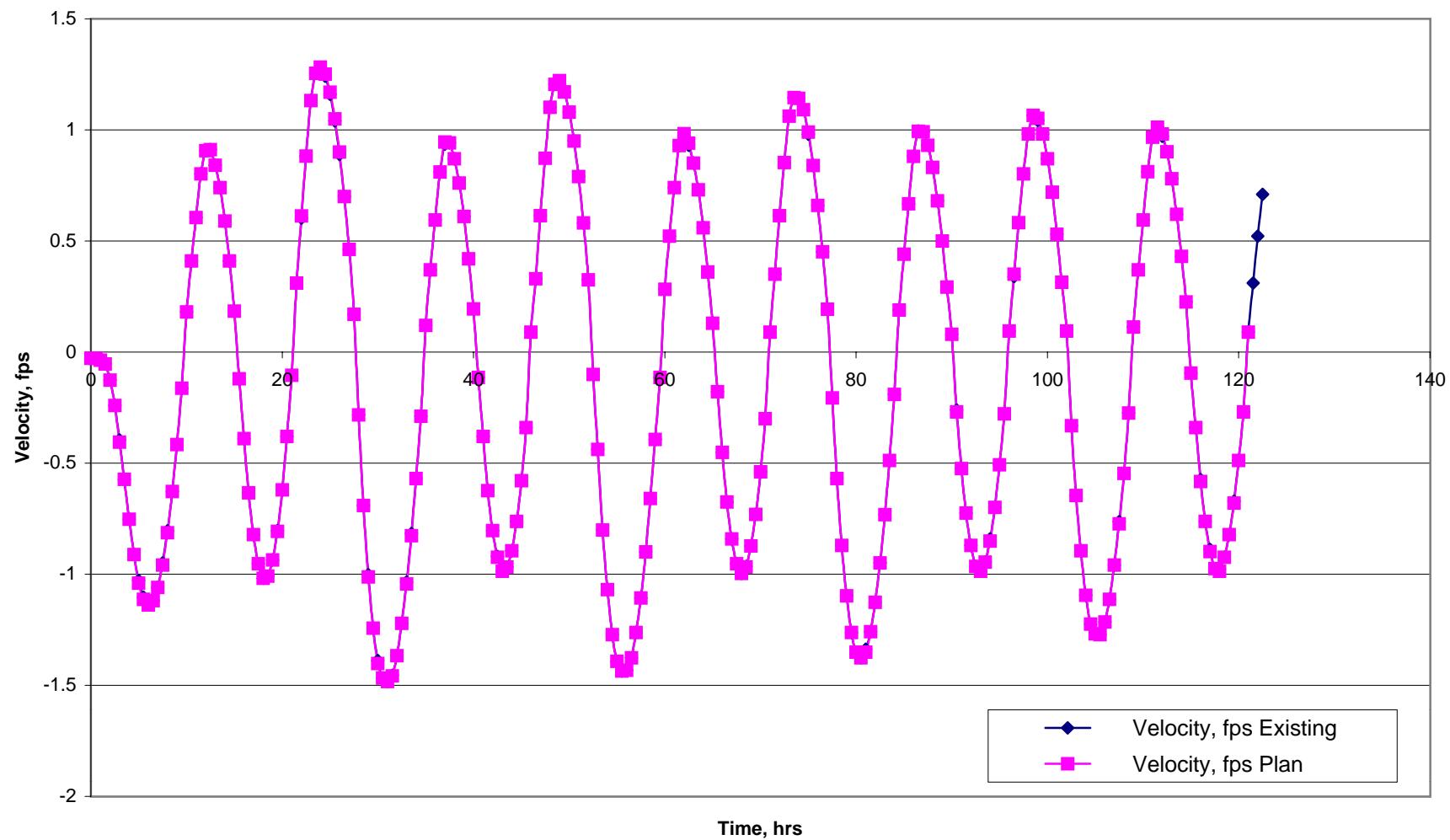
**Node 3011**  
**1511955, 543708.5**



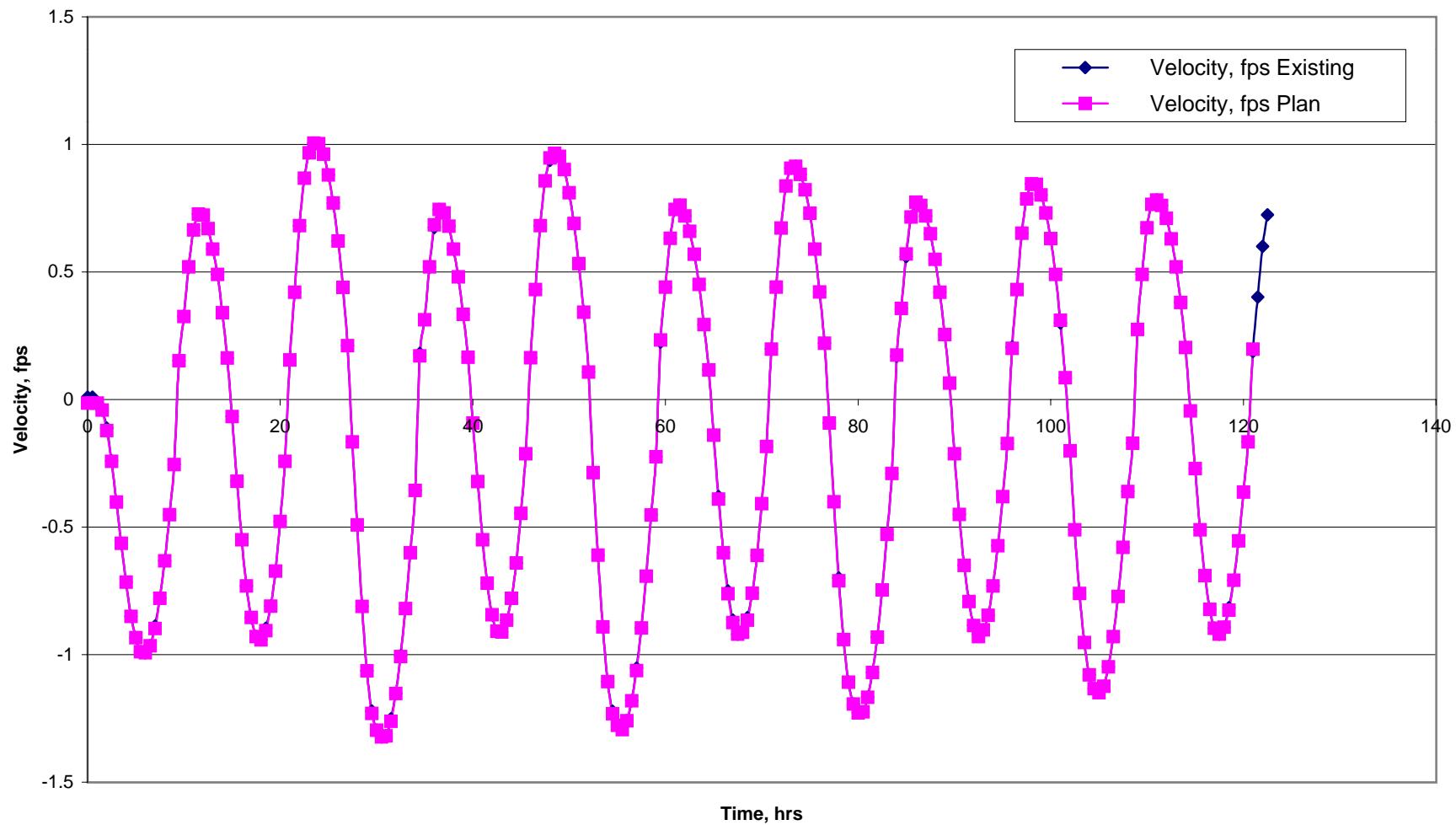
**Node 2708**  
**1511532, 541687**



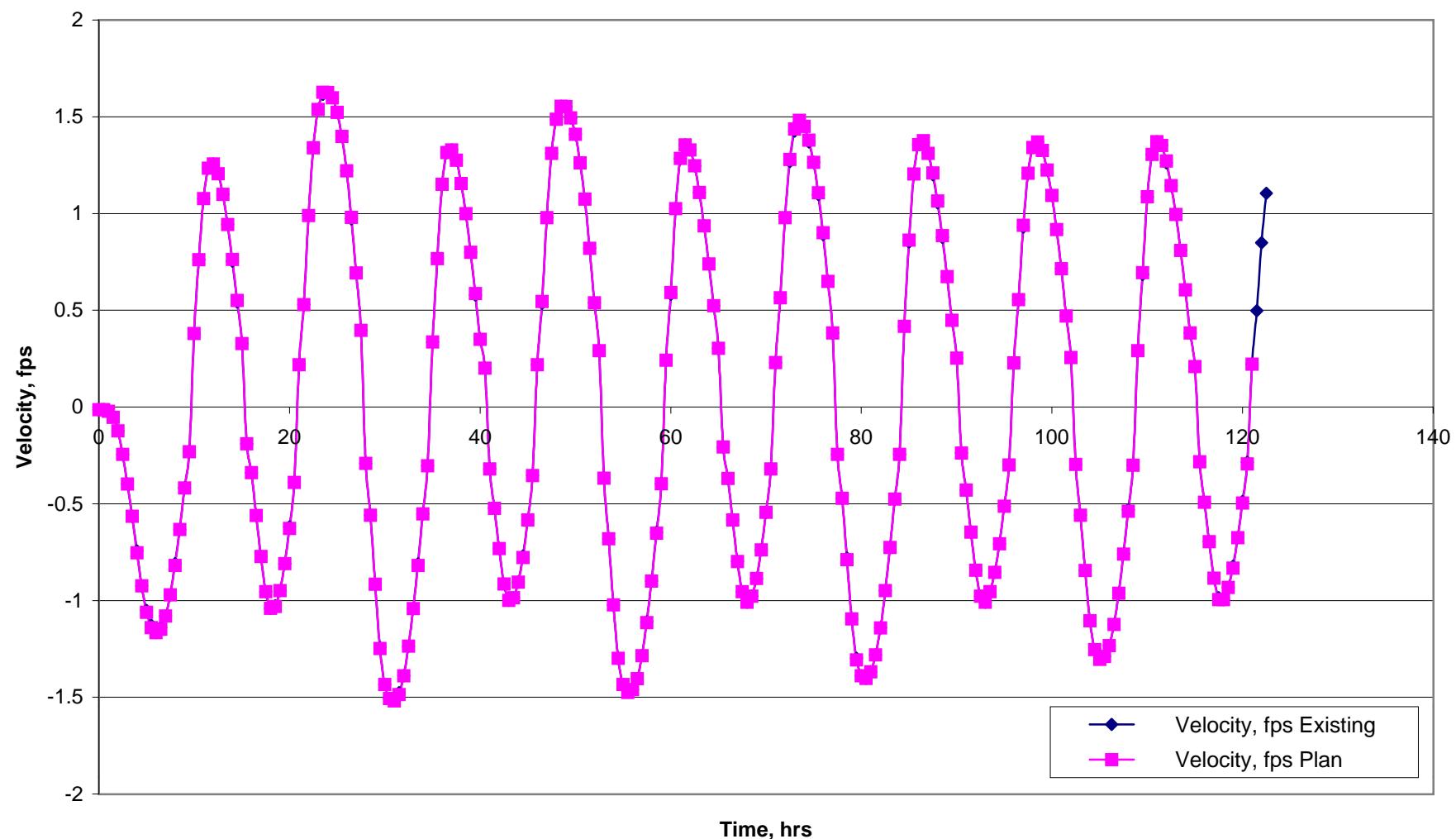
**Node 2447**  
**1510224, 539824**



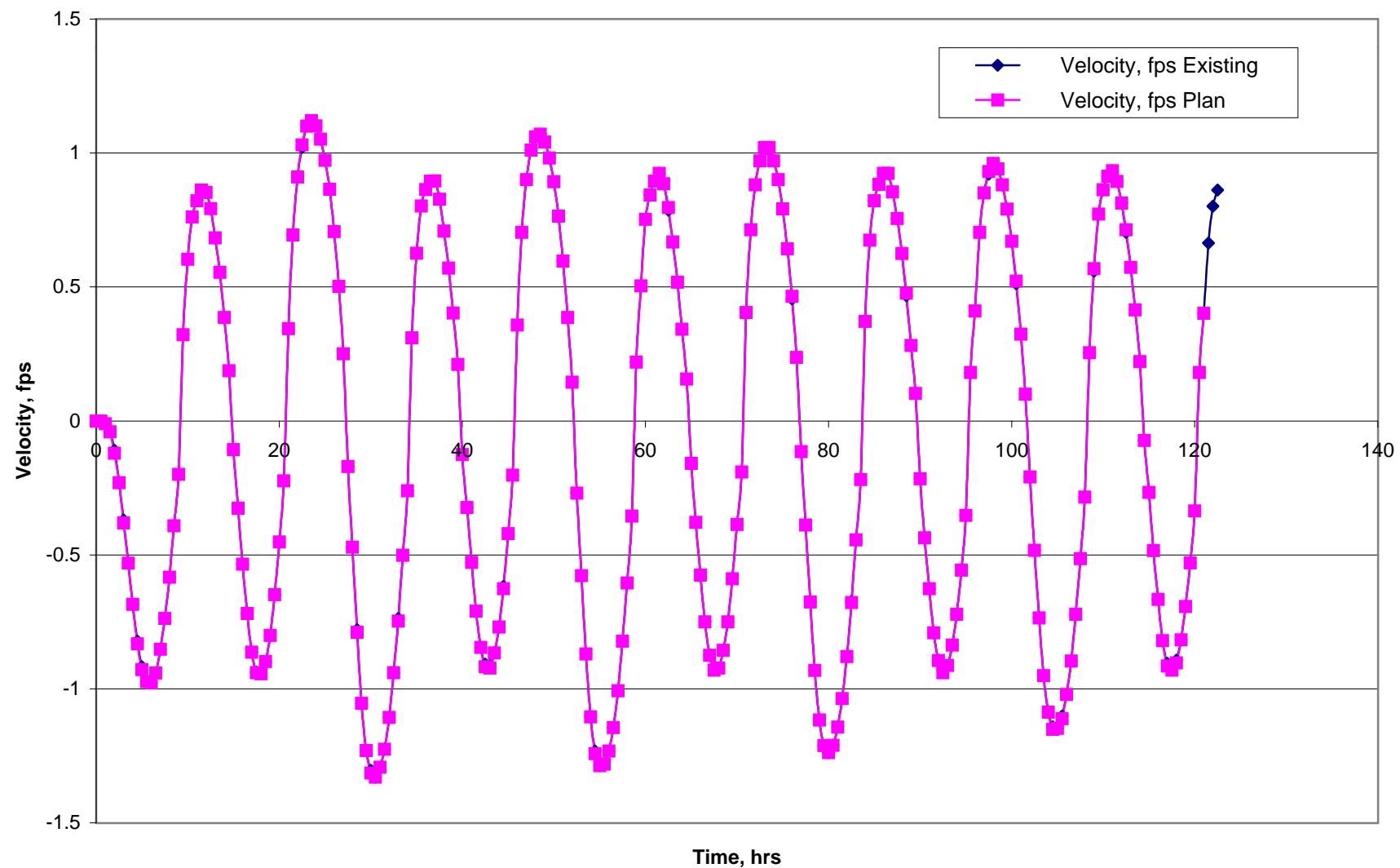
**Node 2445**  
**1511665, 539036.2**



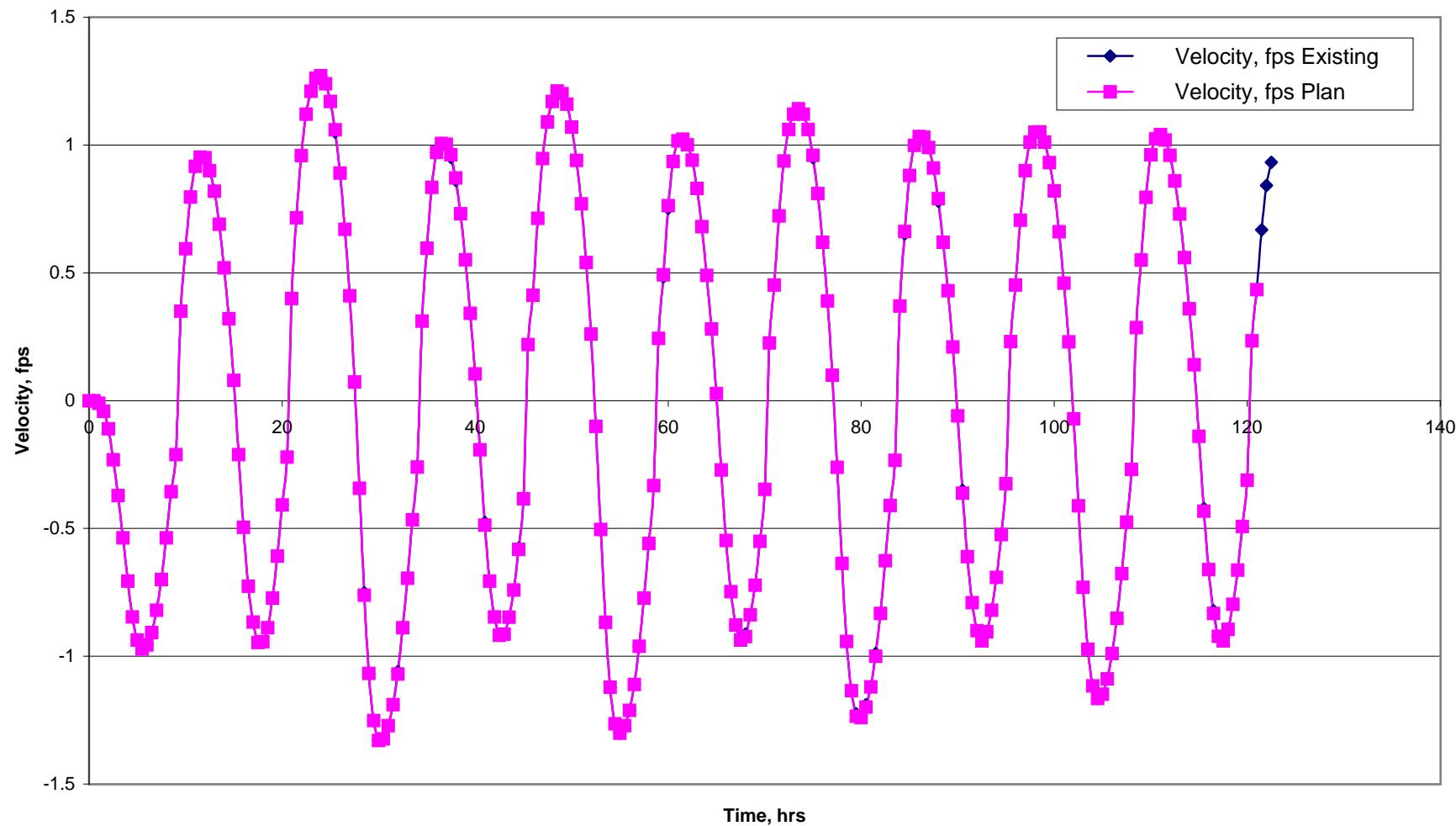
**Node 2224**  
**1508856, 537783.3**



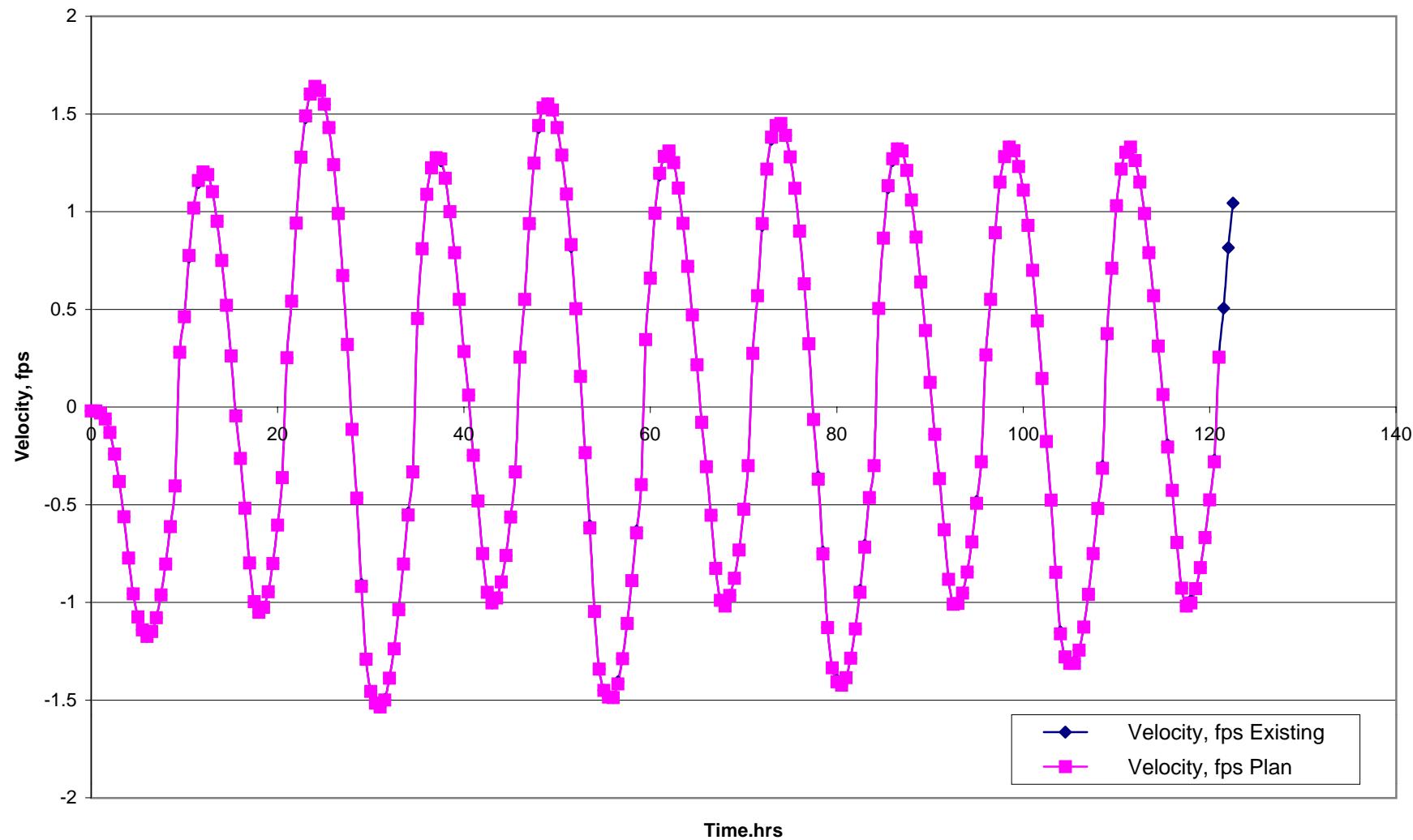
**Node 2440**  
**1511671, 536681.8**



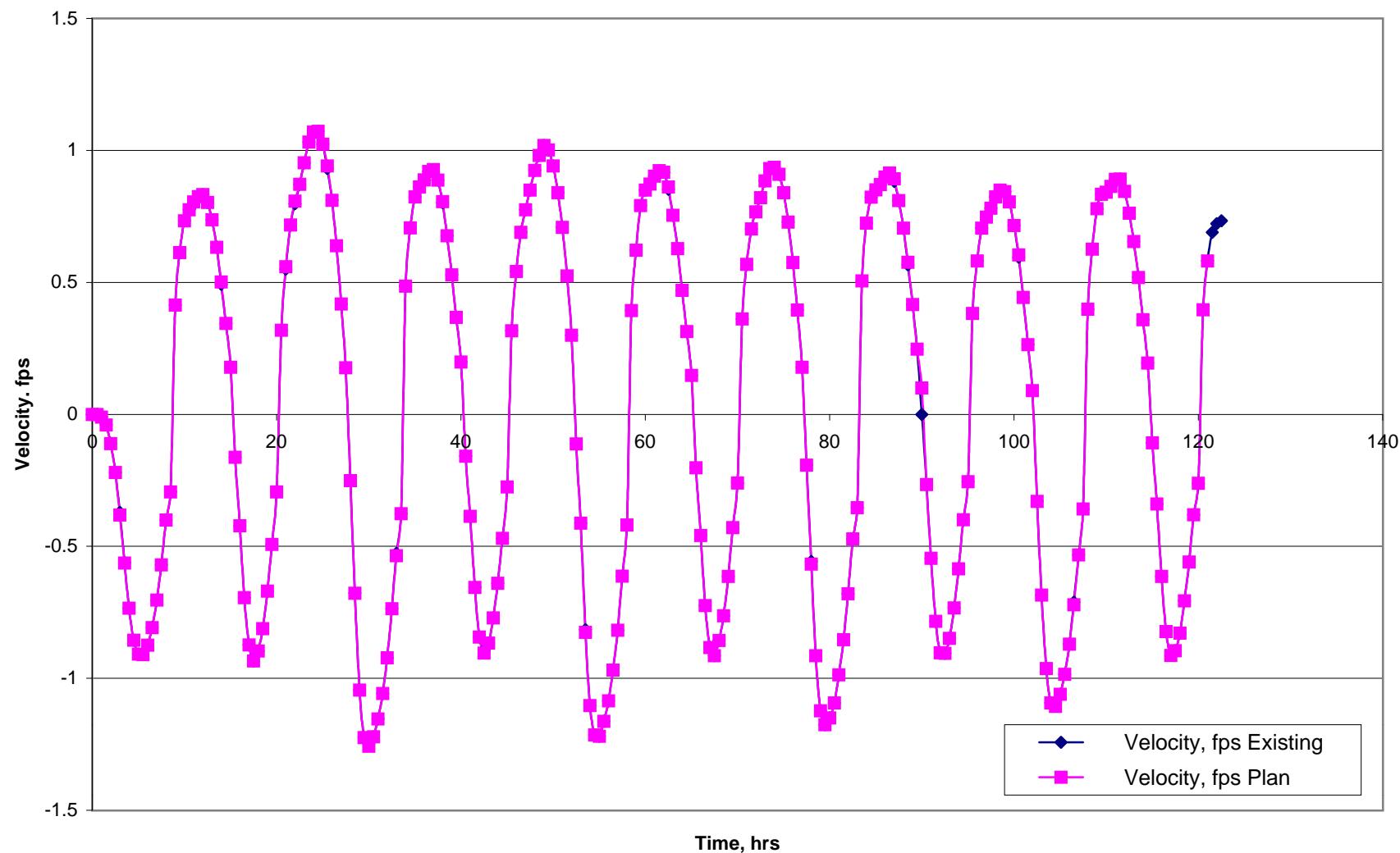
**Node 2220**  
**1511272, 534679.8**



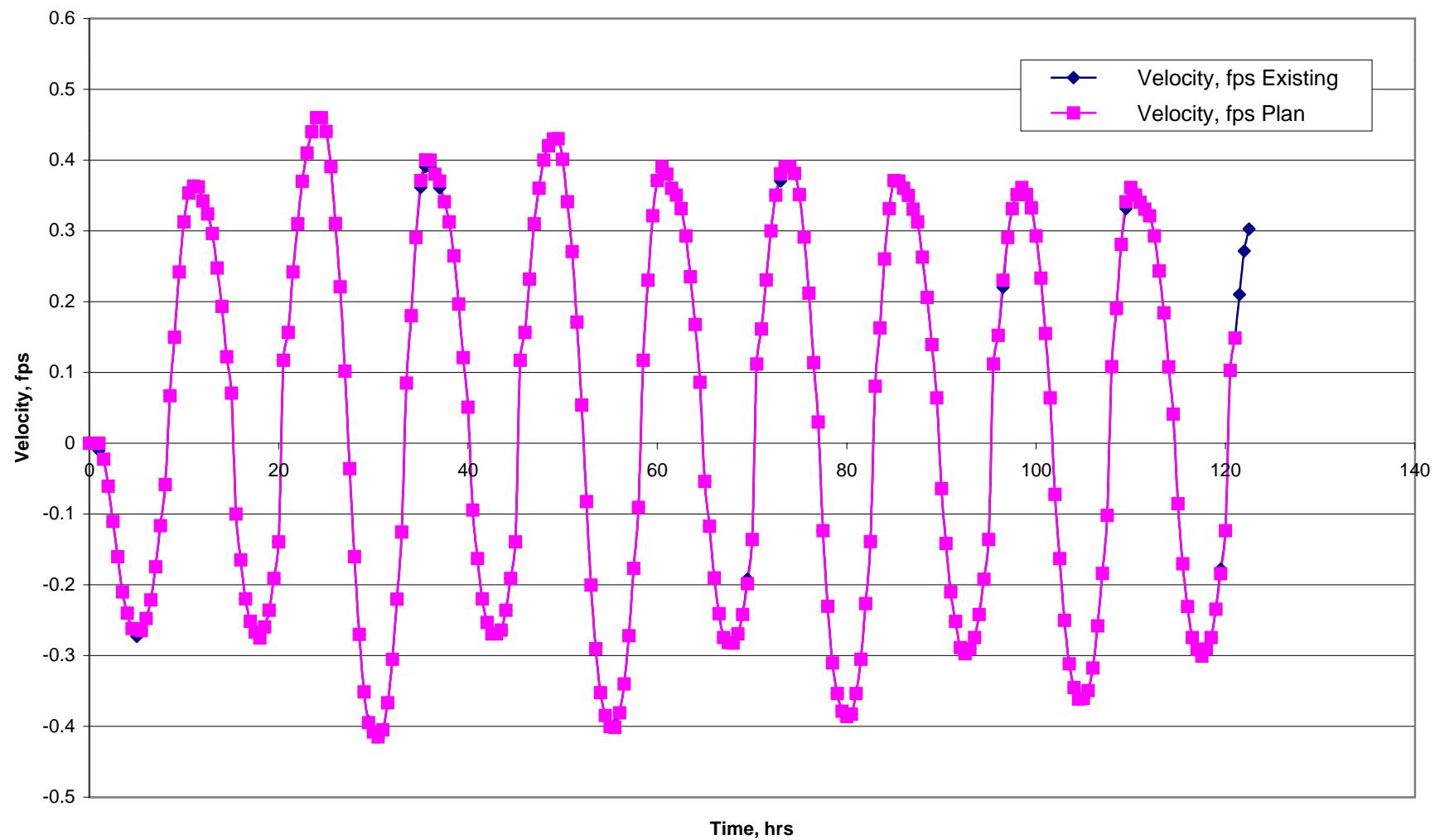
**Node 2227**  
**1507649, 535931.3**



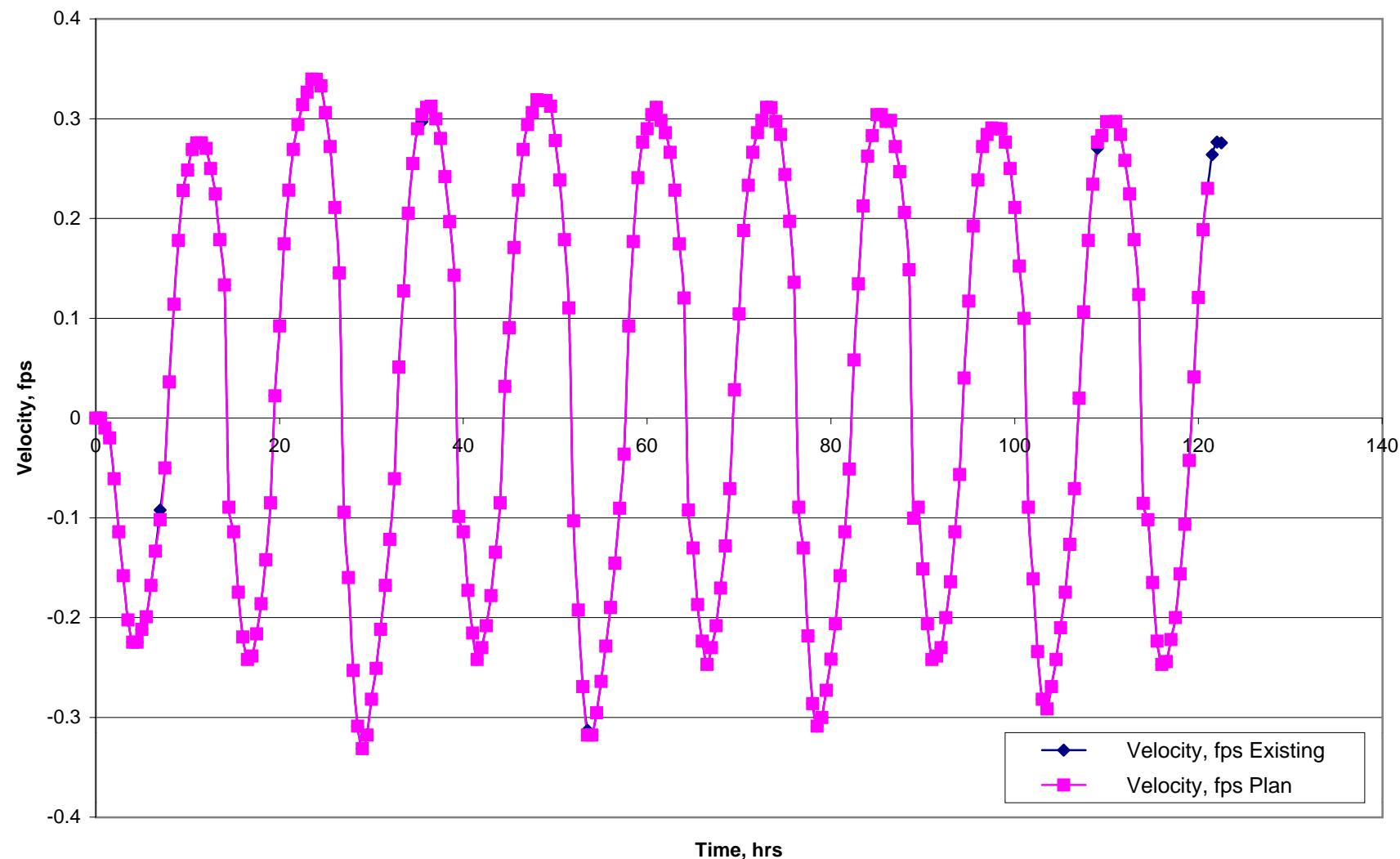
**Node 2019**  
**1511082, 532093.9**



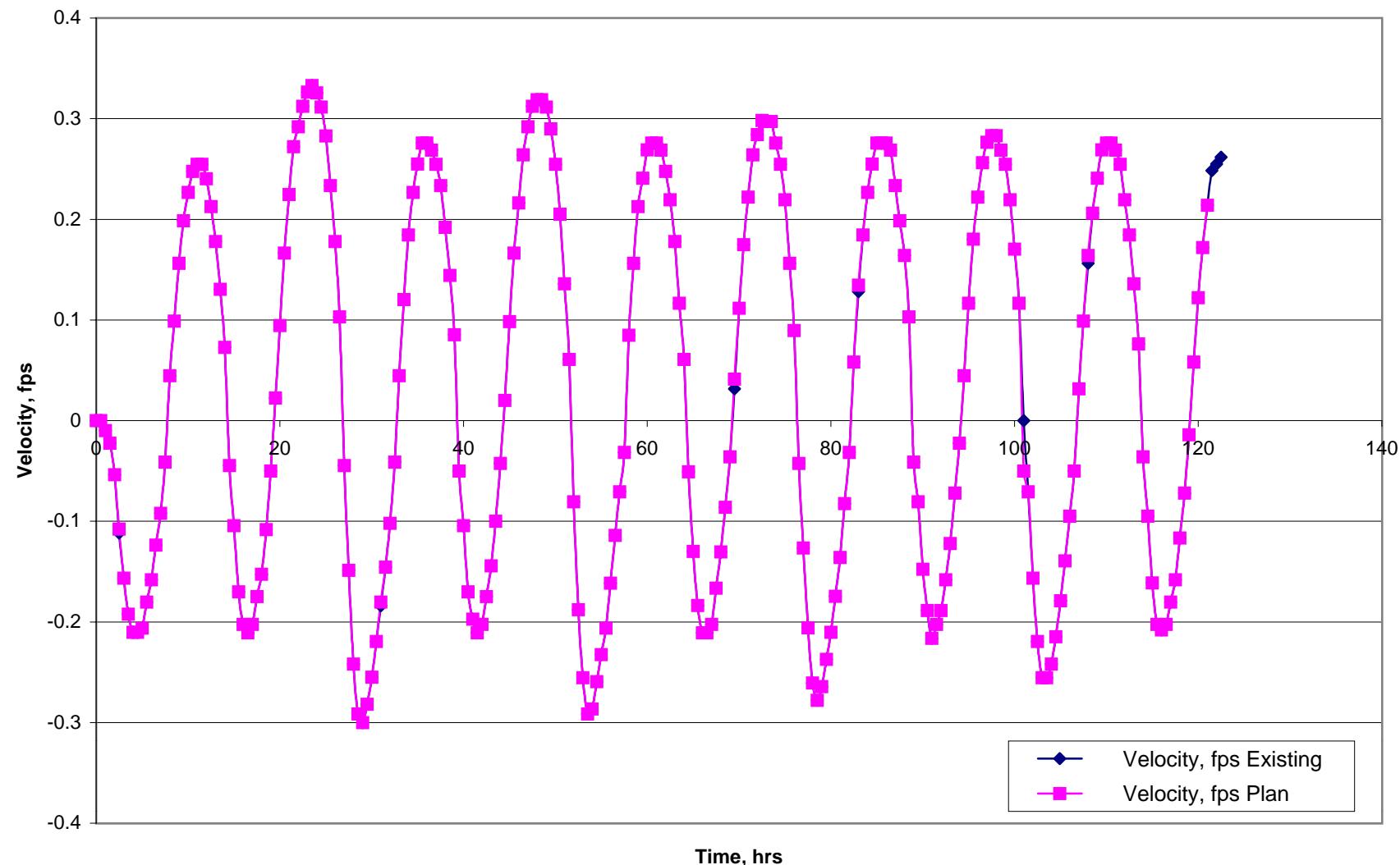
**Node 1685**  
**1516168, 524025.2**



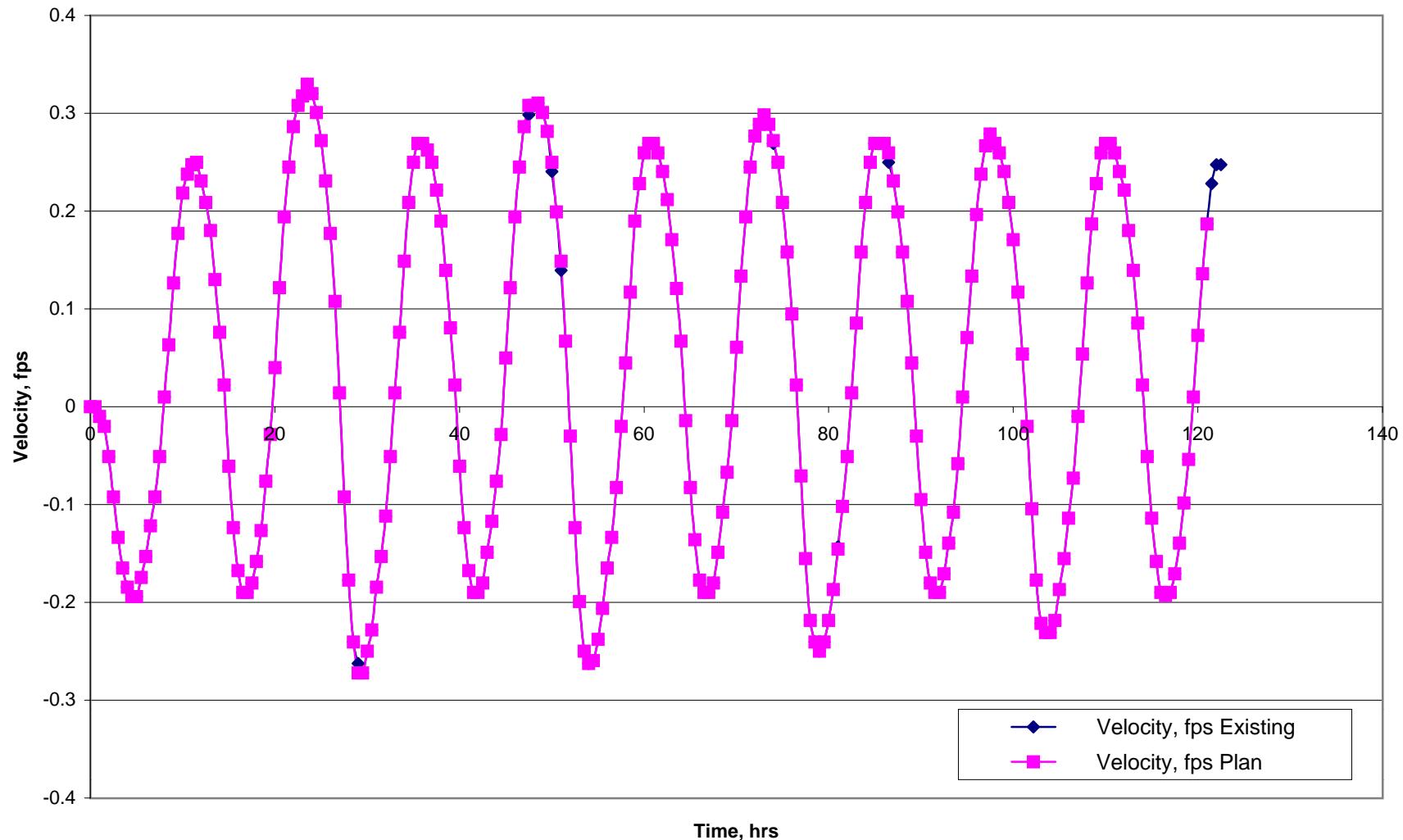
**Node 2211**  
**1519778, 532527.6**



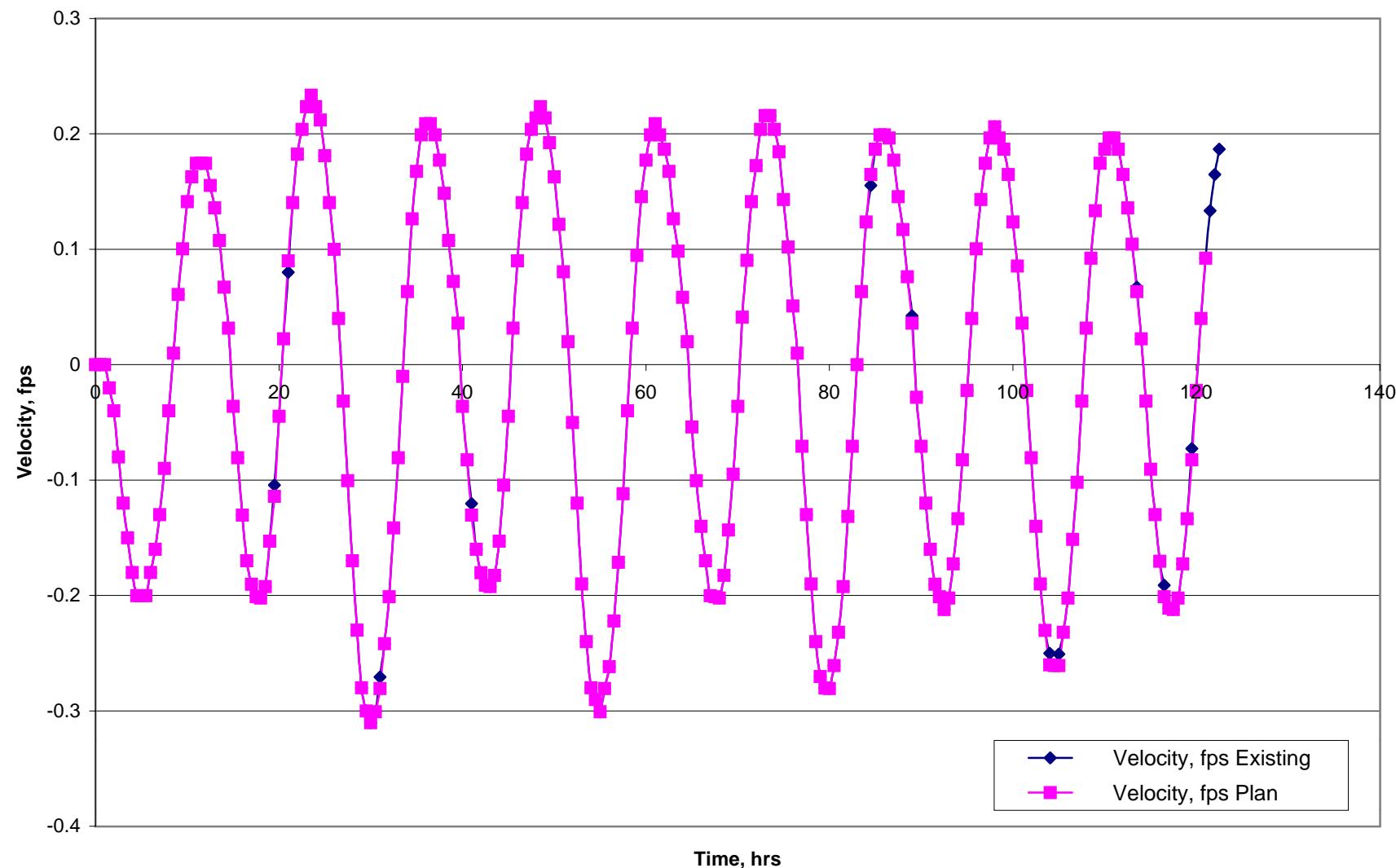
**Node 2428**  
**1521181, 534739.7**



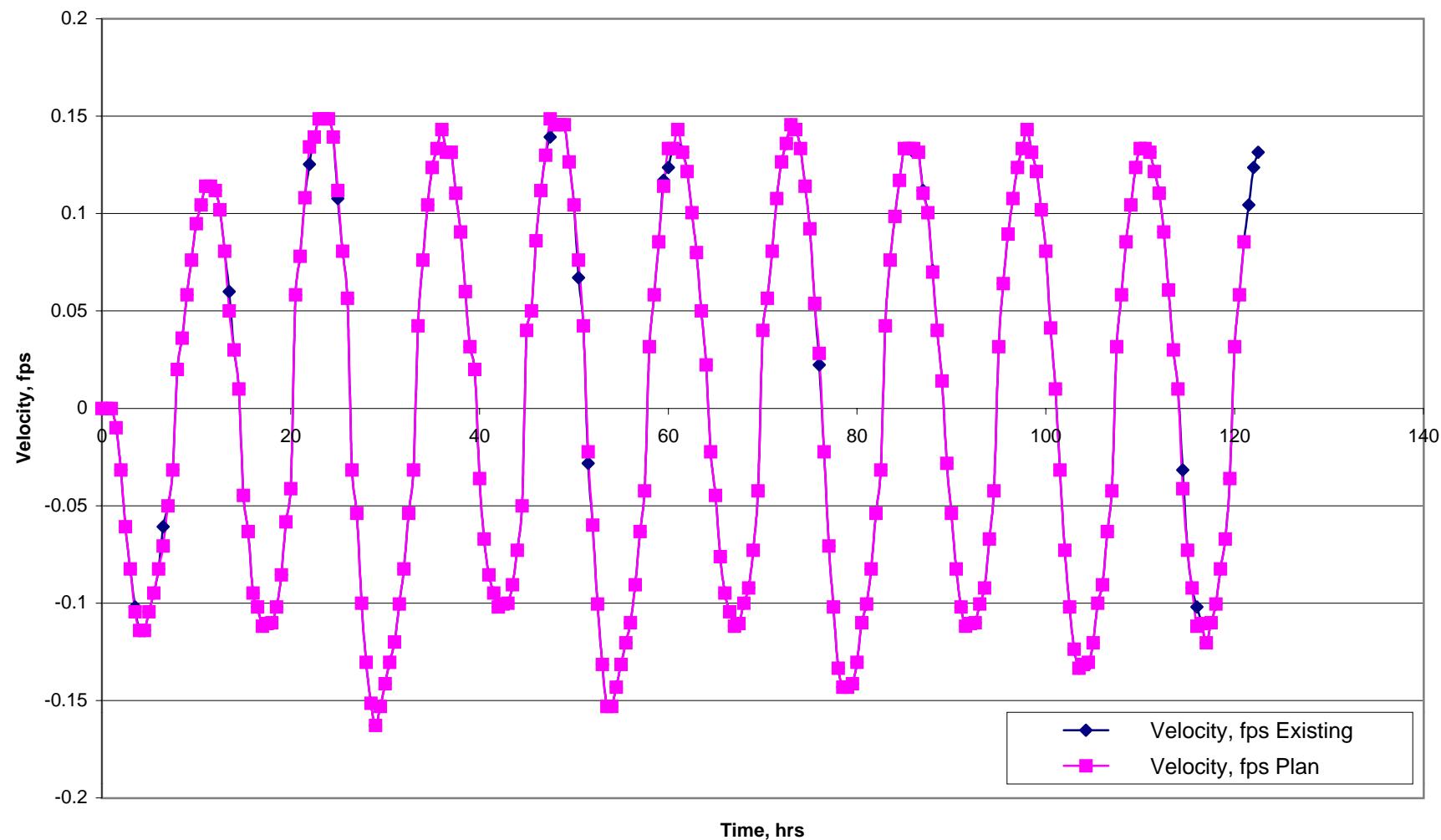
**Node 2205**  
**15522508, 532352.1**



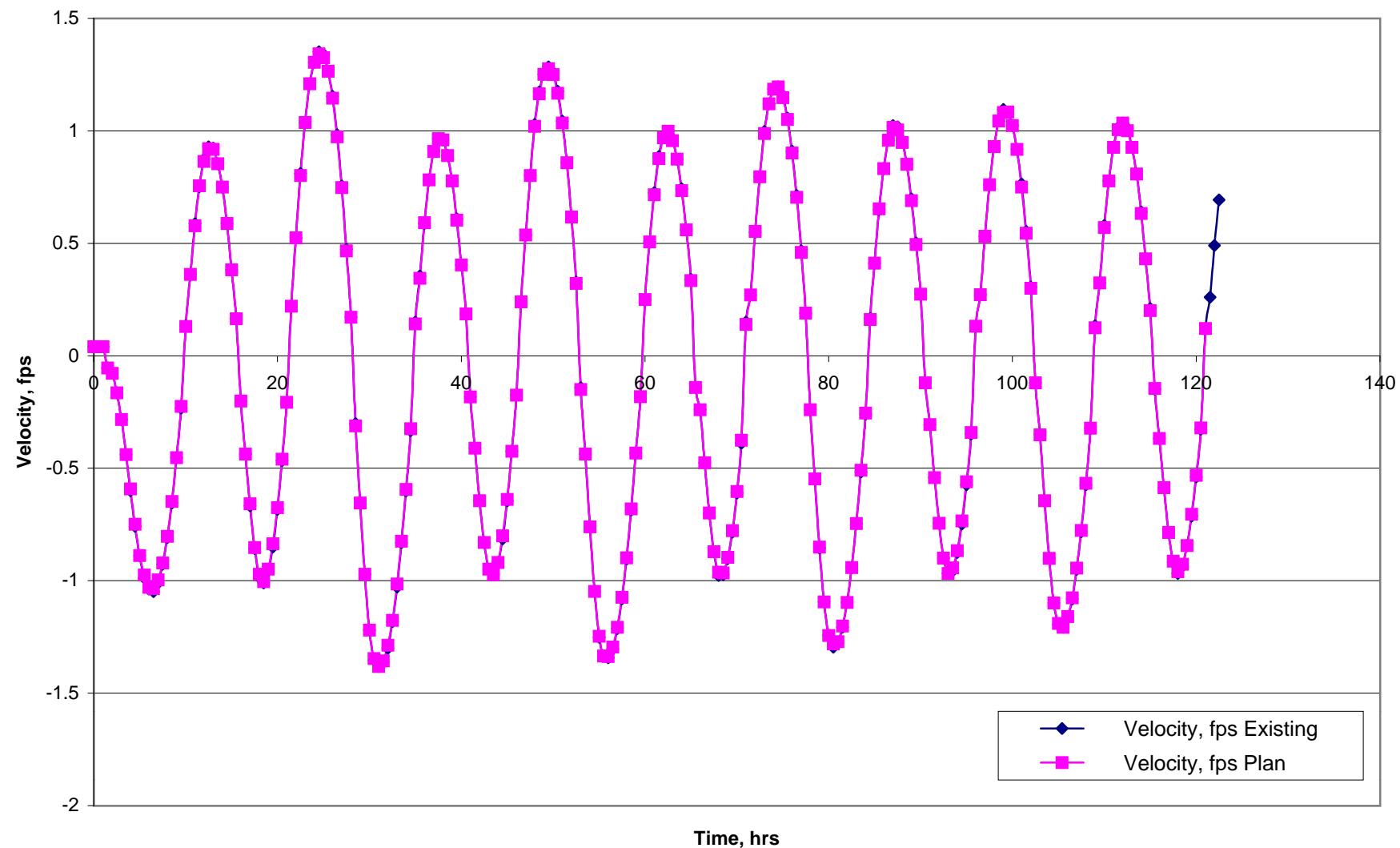
**Node 1668**  
**1524600, 523242.8**



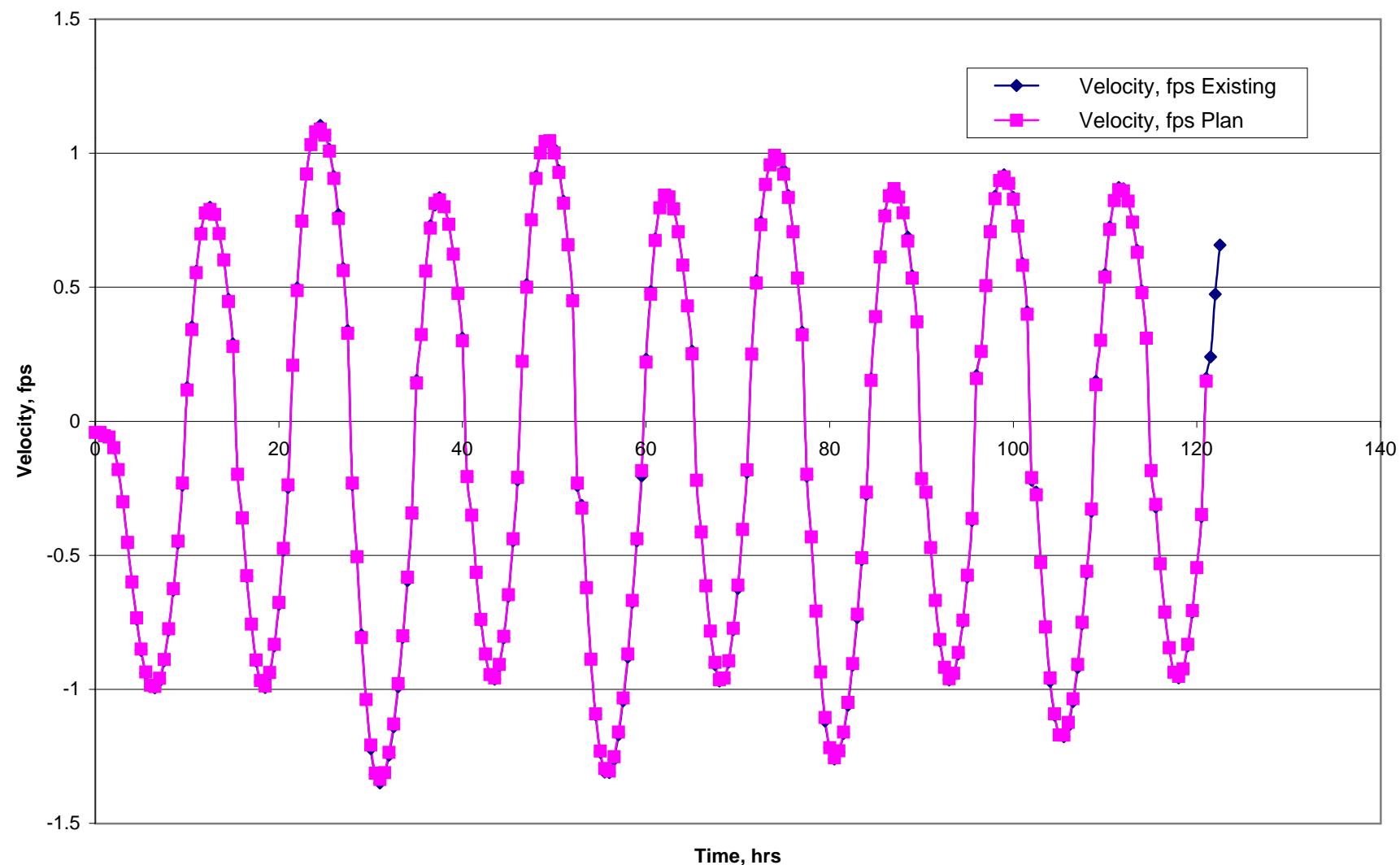
**Node 1508**  
**1525402, 520469.2**



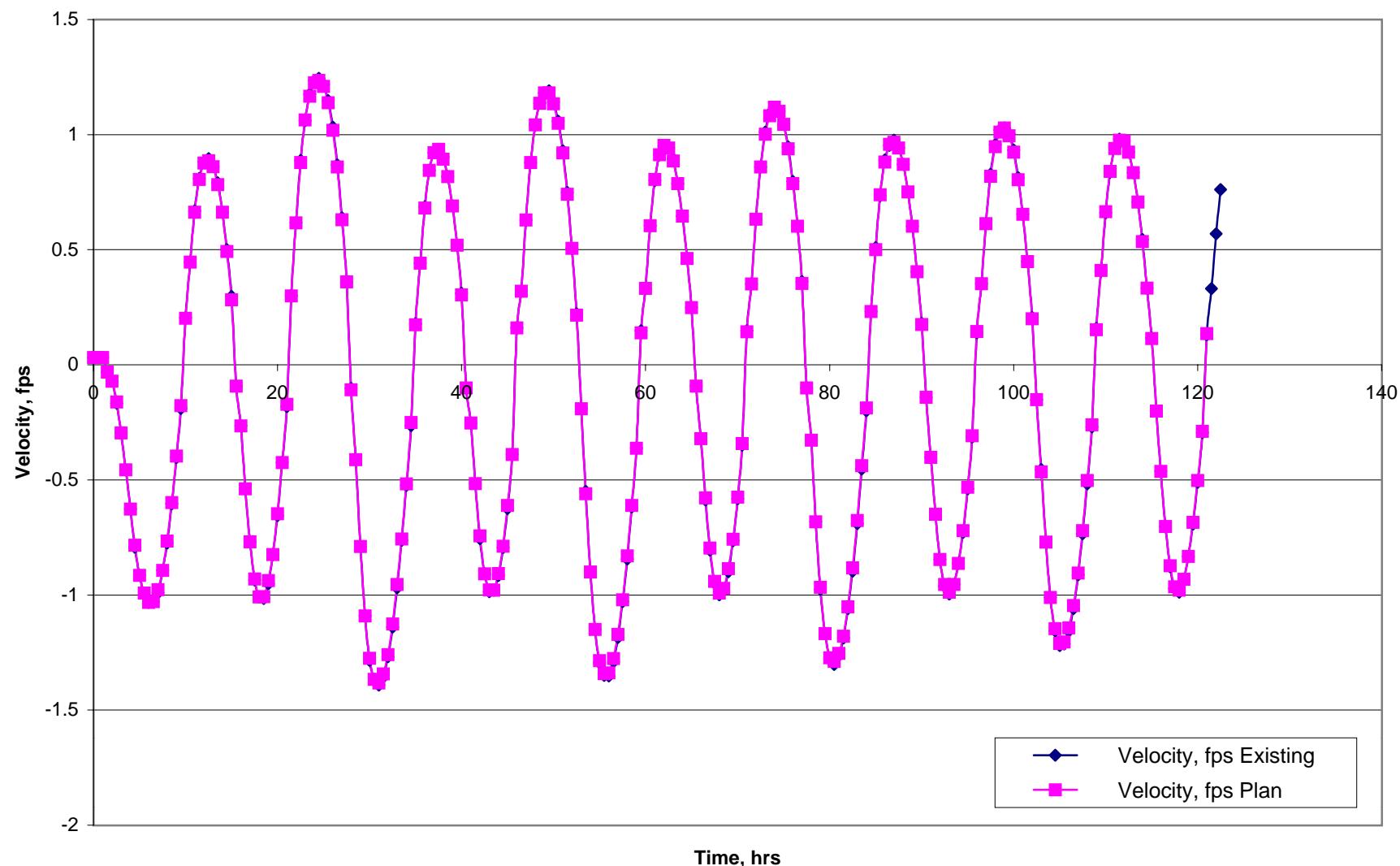
**Node 5251**  
**1509748, 569756.8**



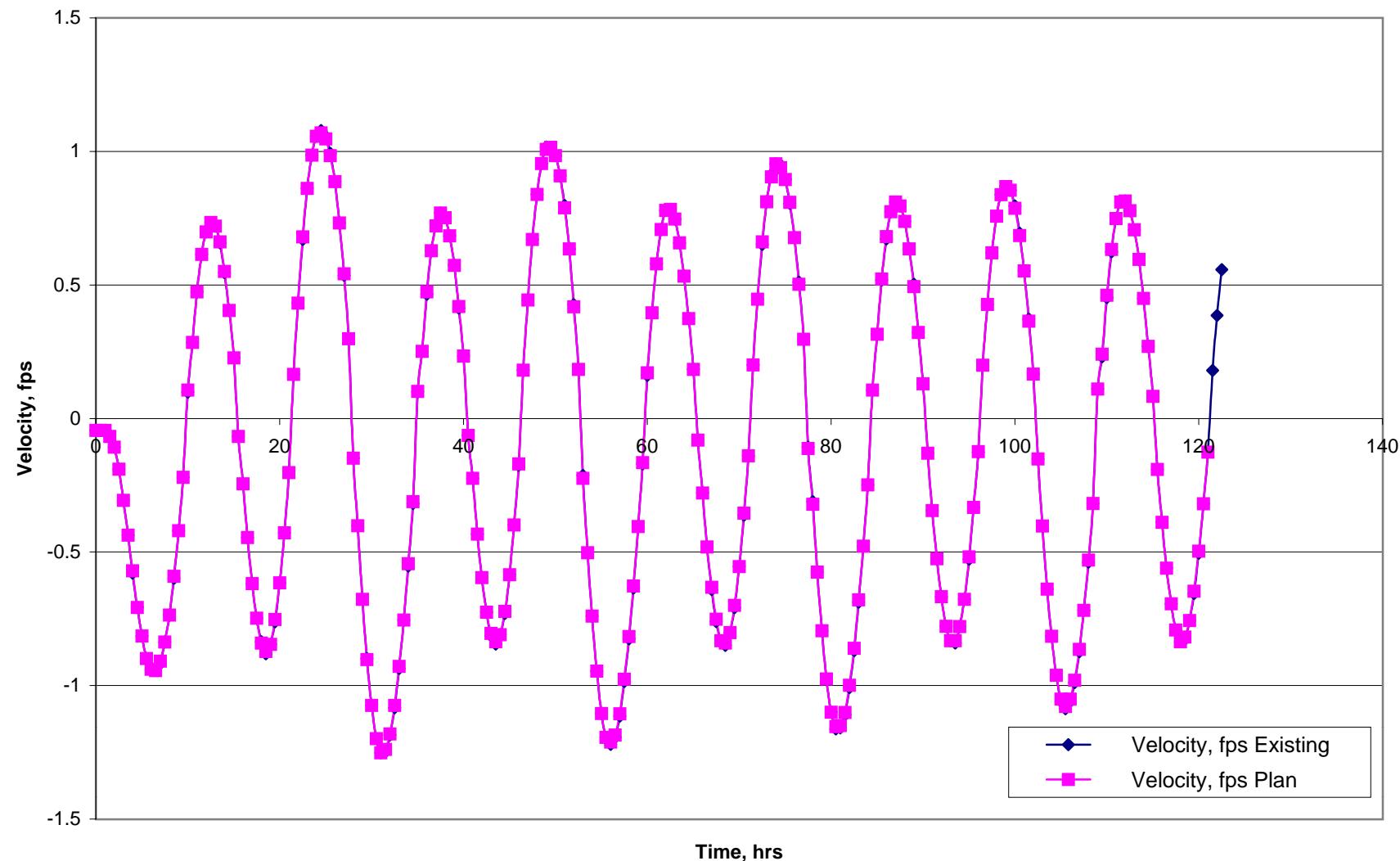
**Node 5245**  
**1514009, 568161.3**



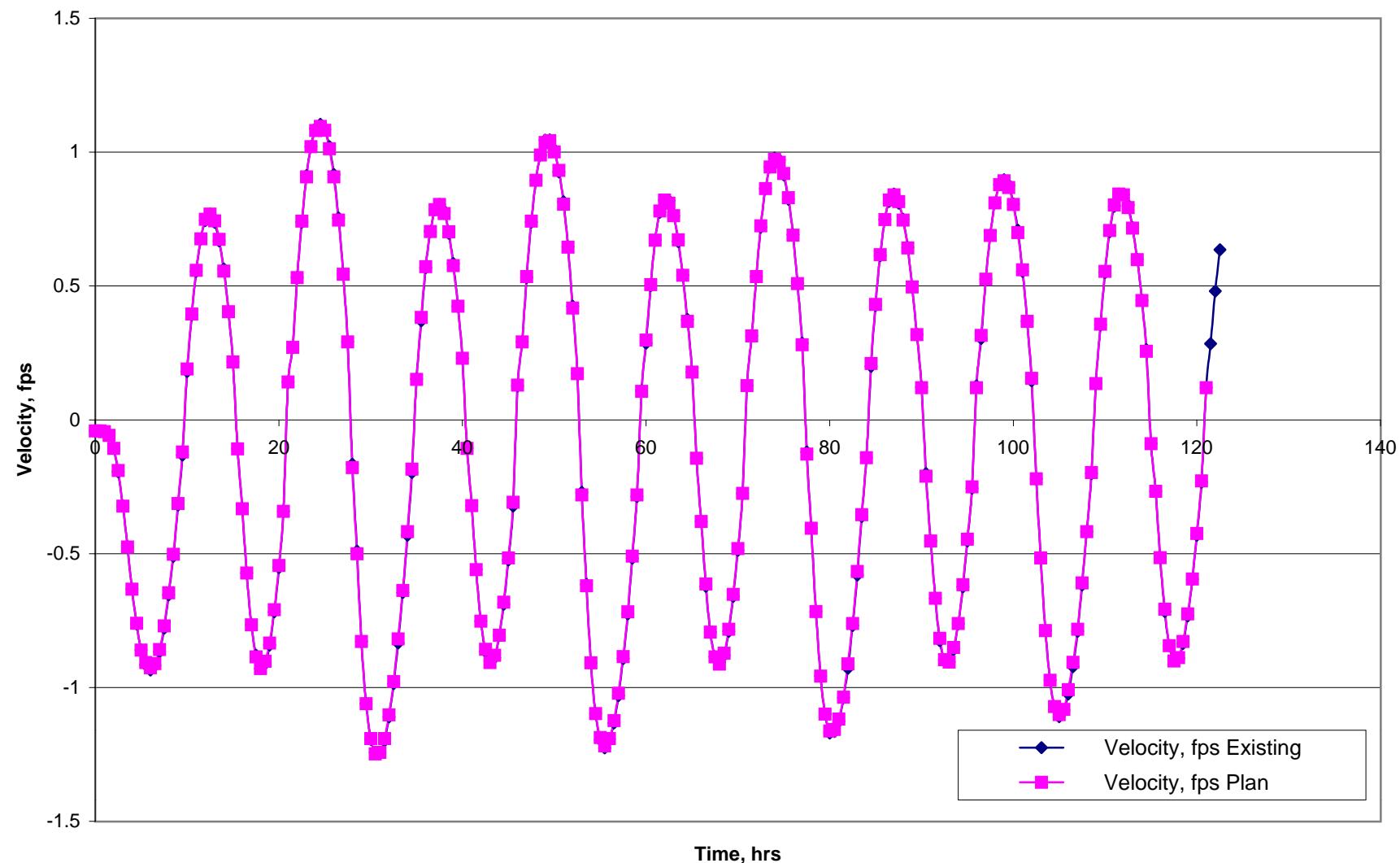
**Node 4620**  
**1509196, 563992.9**



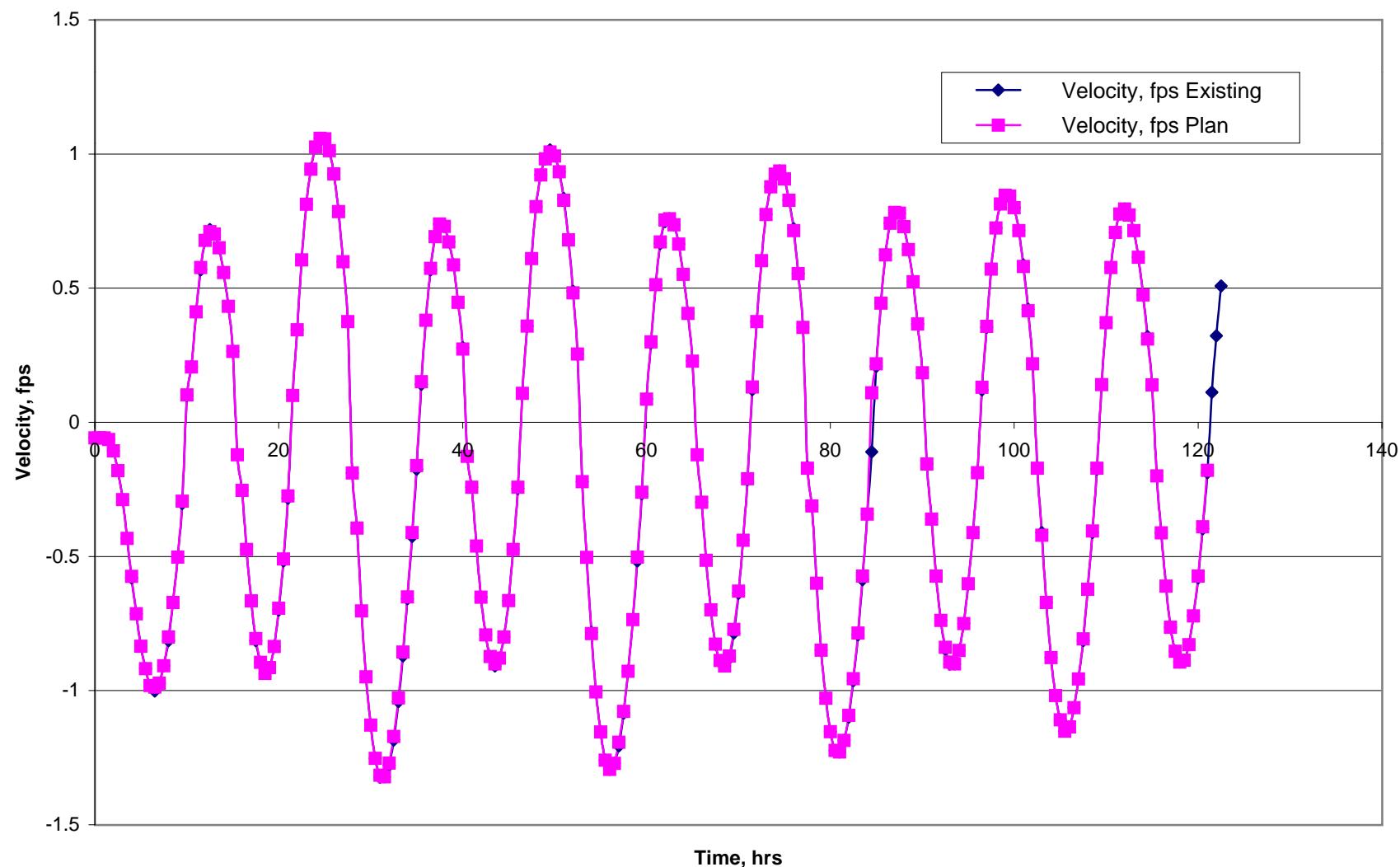
**Node 4630**  
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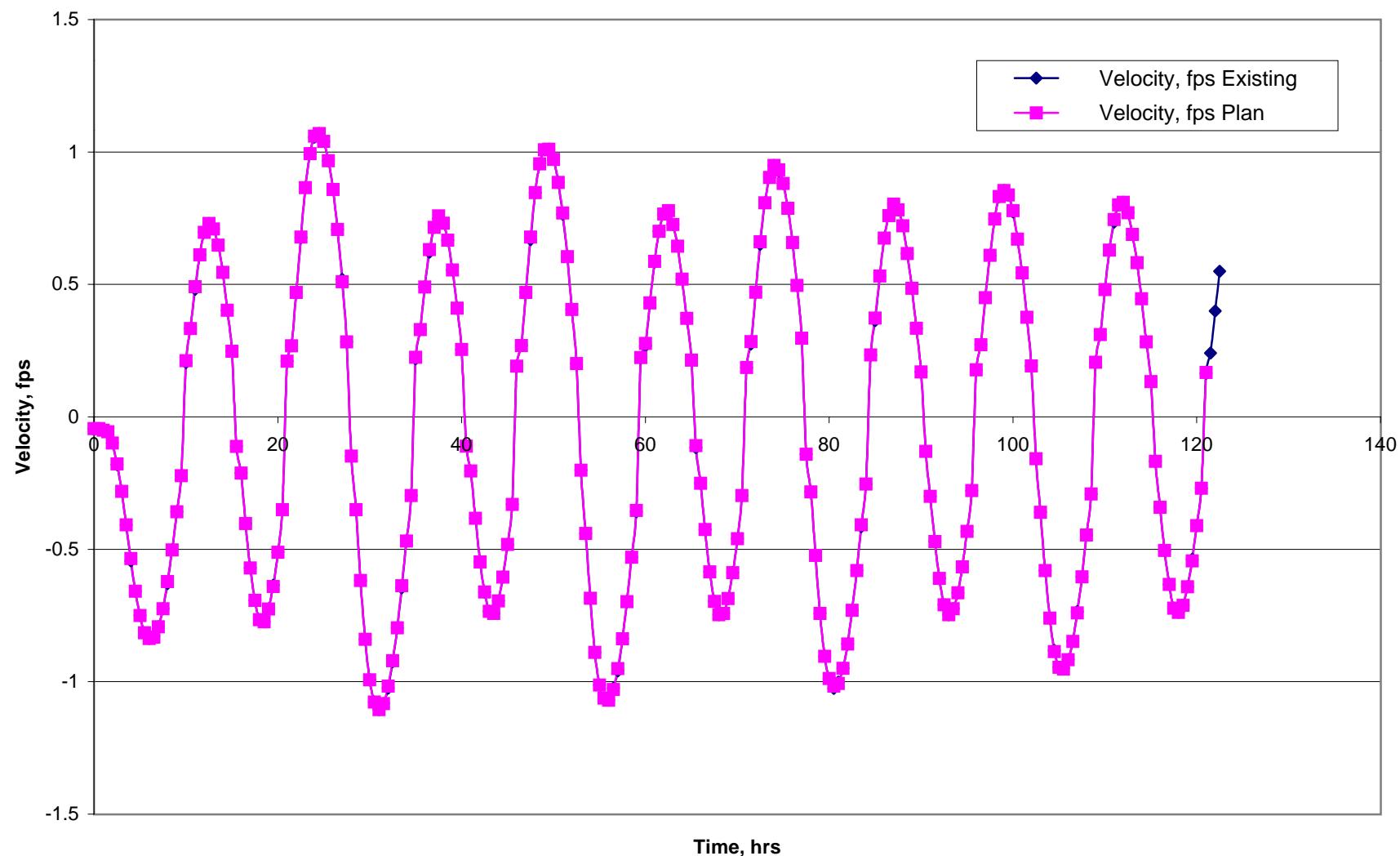
**Node 4325**  
**1510915, 559330.2**



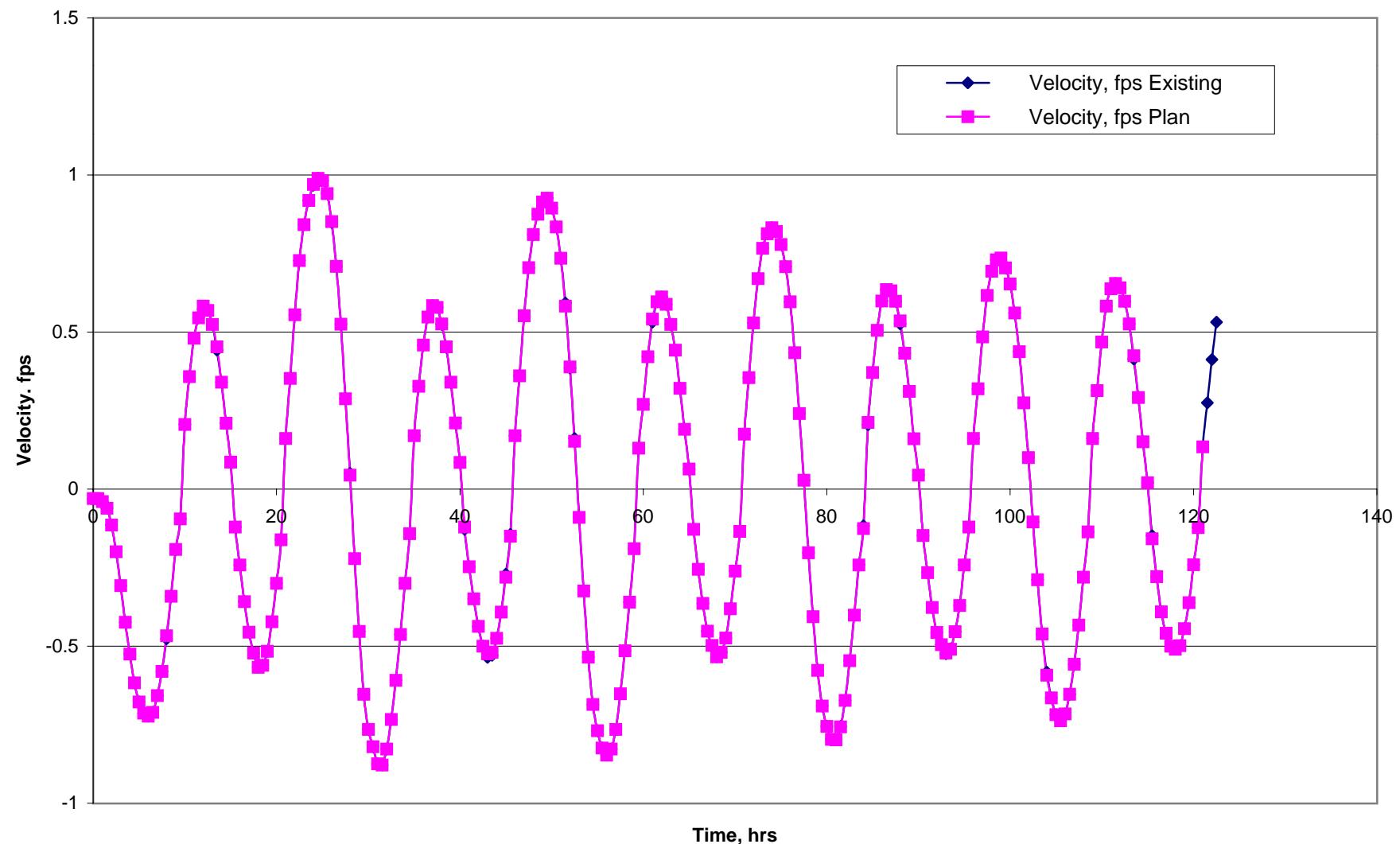
**Node 5270**  
**1497903, 564262.9**



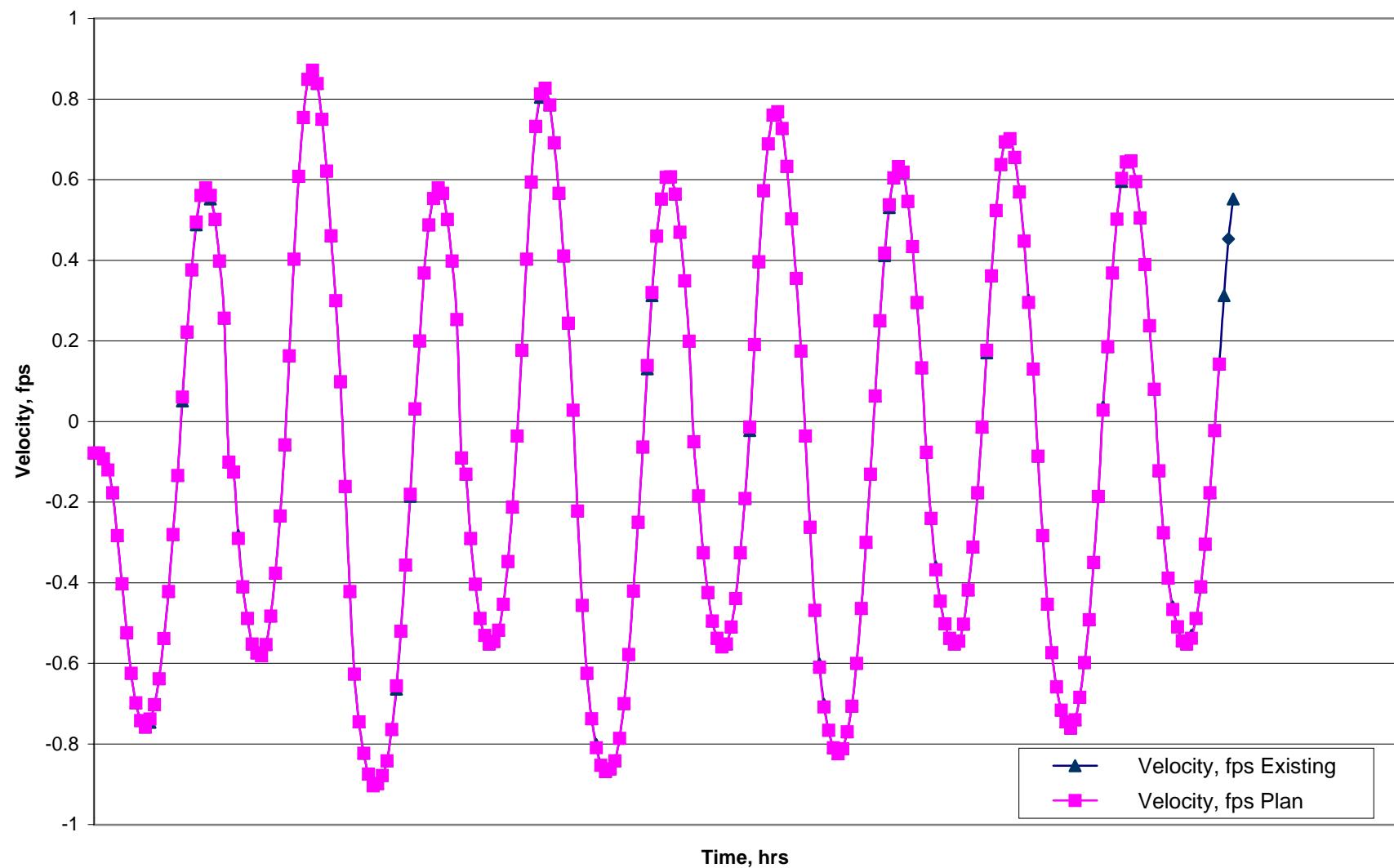
**Node 4100**  
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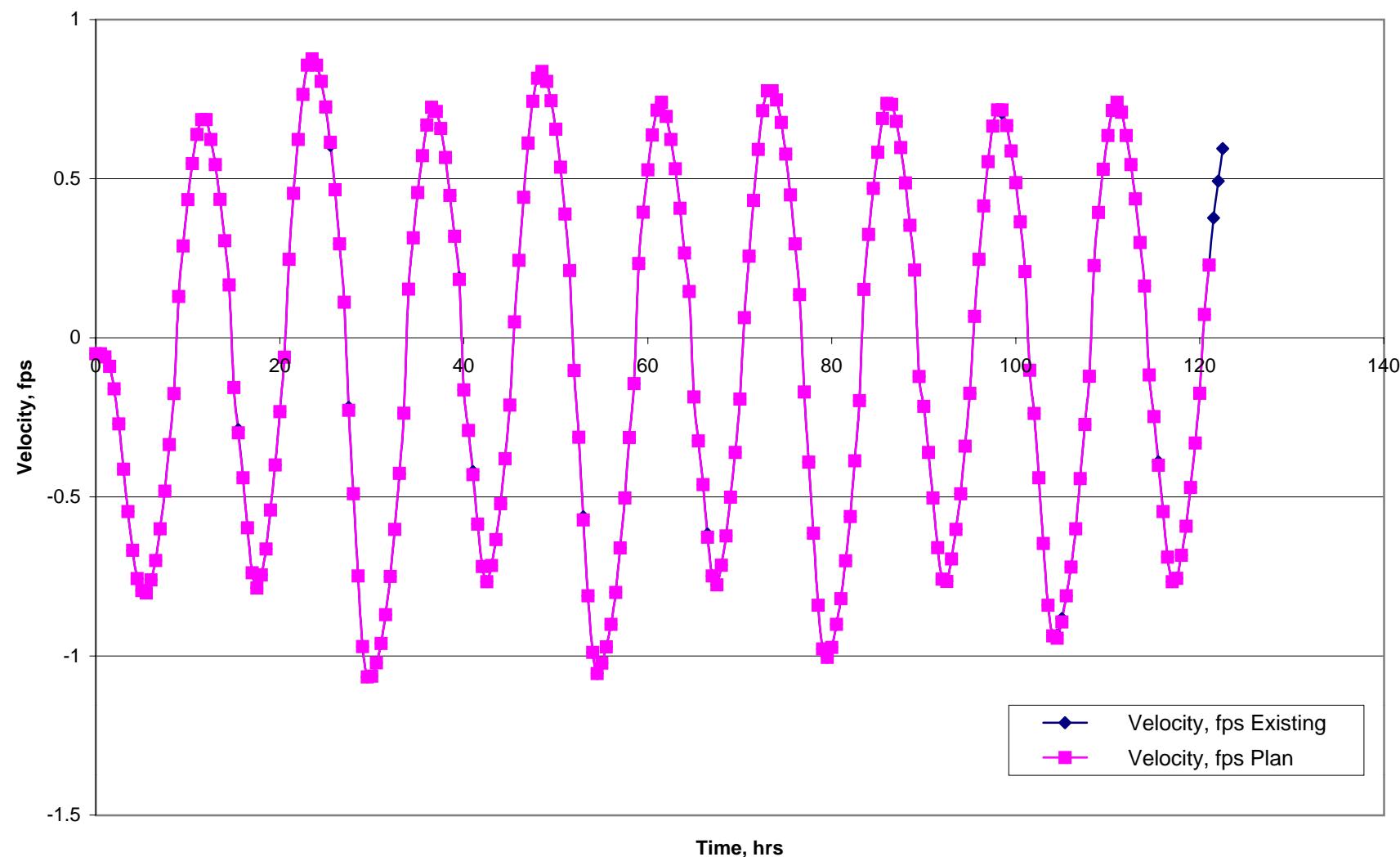
**Node 2511**  
**1479656, 543518.6**



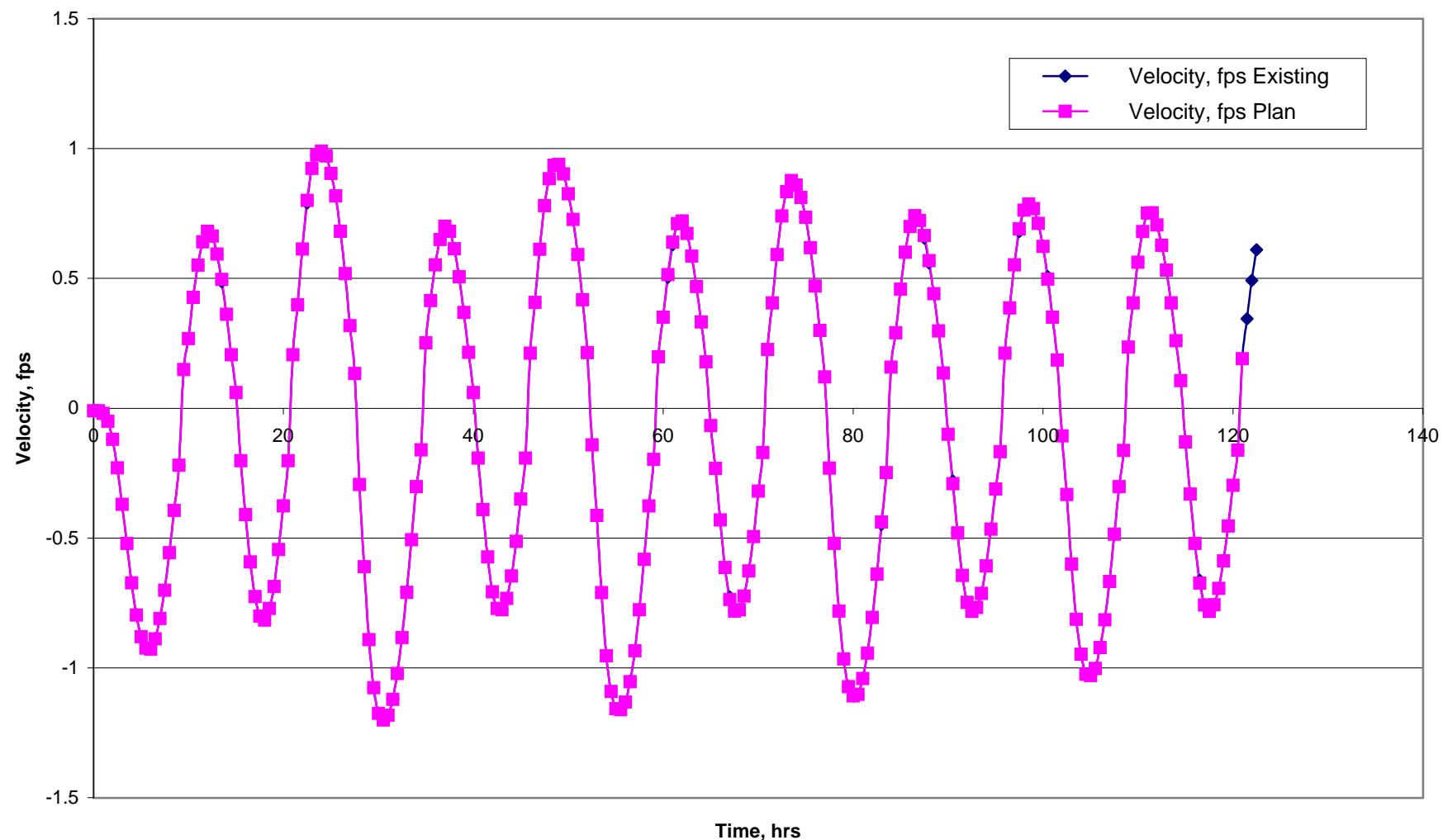
**Node 2078**  
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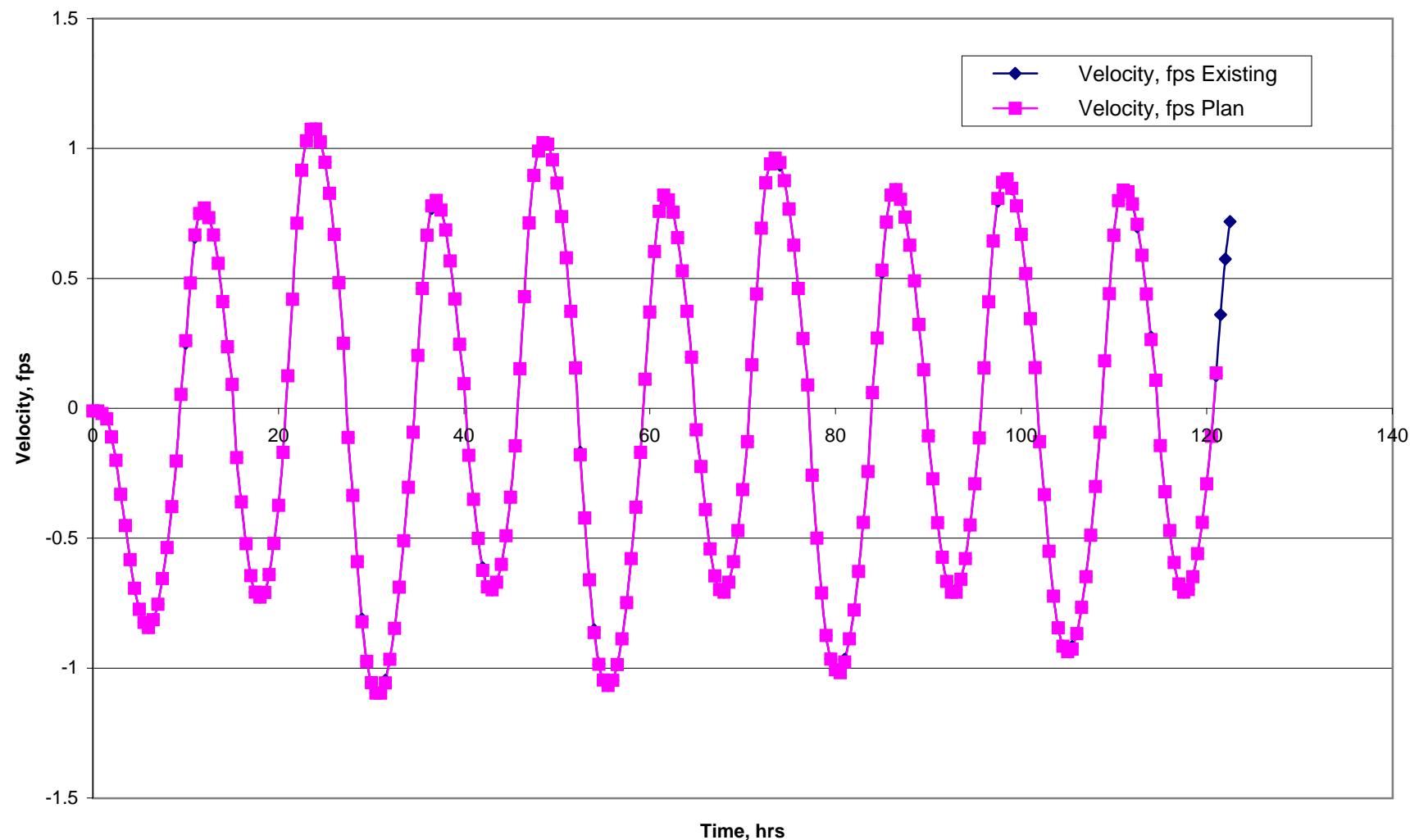
**Node 1580**  
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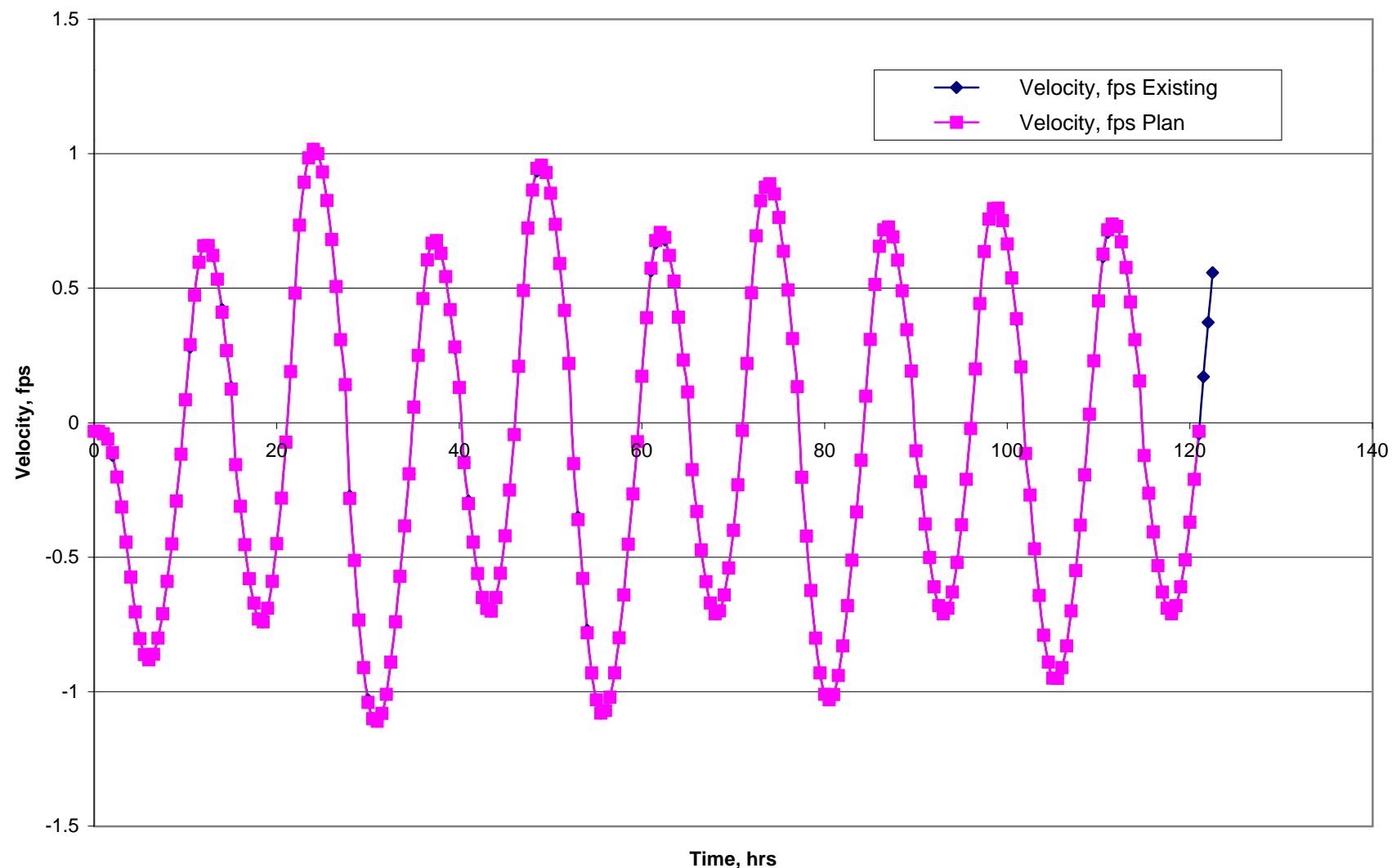
**Node 1889**  
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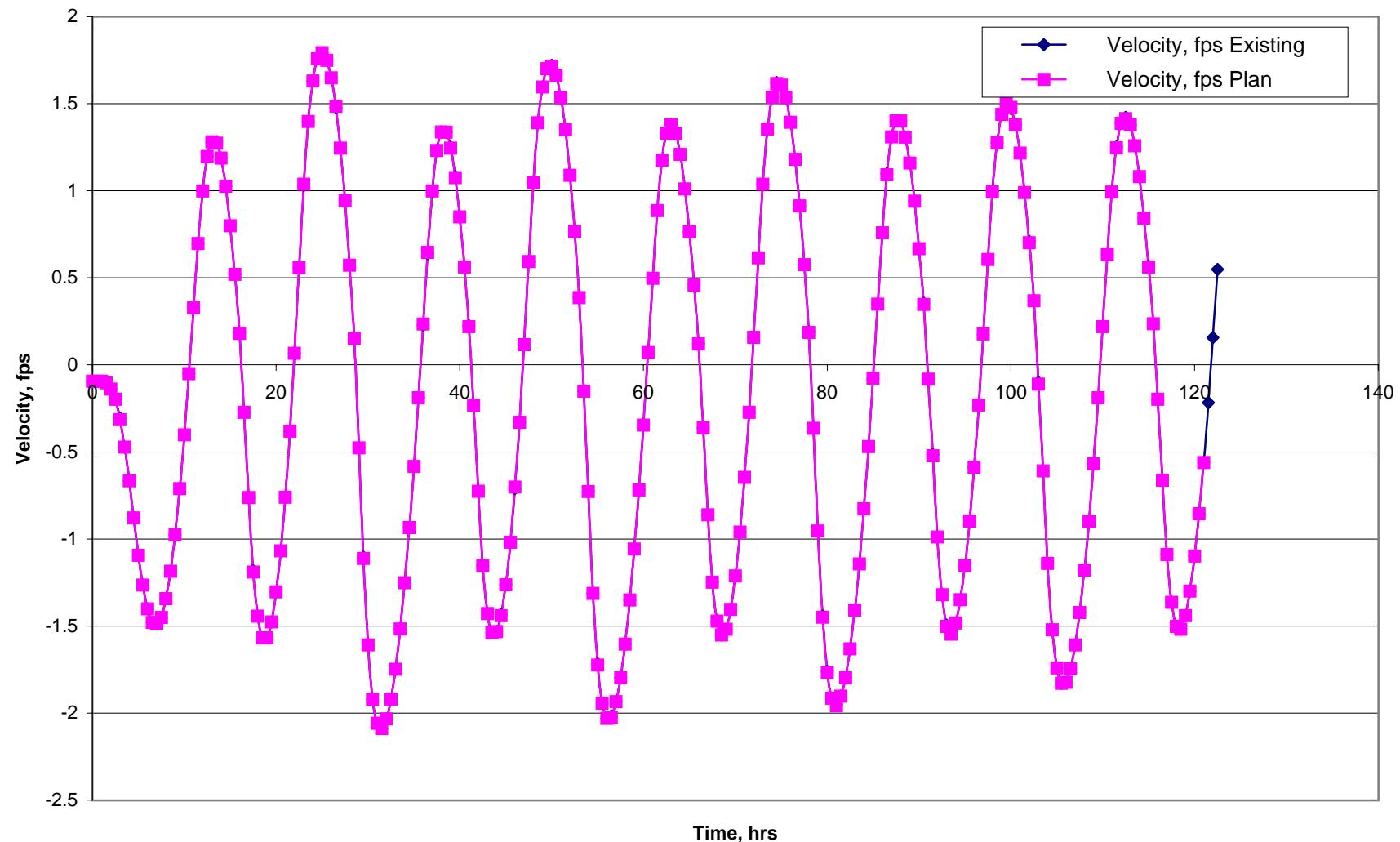
**Node 2051**  
**1490007, 538317.8**



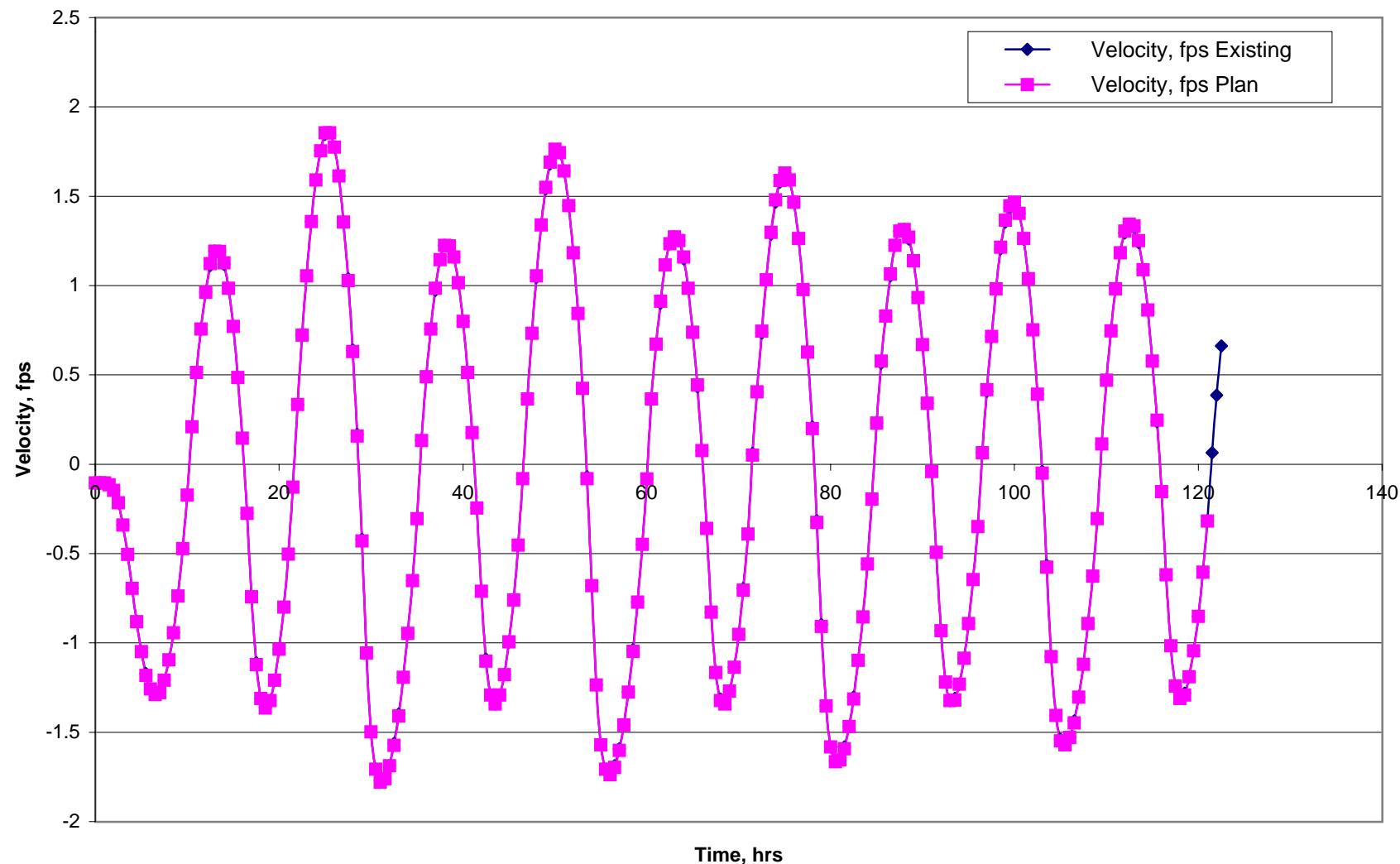
**Node 2249**  
**1494946, 539670.4**



**Node 7286**  
**1523427,583654.2**



**Node 7261**  
**1530206, 577732**



Node No.	Node No.		Node No.		Node No.	
	4061		4586		4057	
	Easting	Northing	Easting	Northing	Easting	Northing
	1517134	553406.4	1520589	555144.9	1518032	552997.6
Time	Velocity, fps		Velocity, fps		Velocity, fps	
	Existing	Plan	Existing	Plan	Existing	Plan
0	-0.056569	-0.064031	-0.056569	-0.056569	-0.05	-0.05831
0.5	-0.056569	-0.070711	-0.056569	-0.056569	-0.05	-0.05831
1	-0.070711	-0.070711	-0.064031	-0.070711	-0.05	-0.05831
1.5	-0.084853	-0.092195	-0.084853	-0.084853	-0.078102	-0.078102
2	-0.134536	-0.148661	-0.120416	-0.120416	-0.134536	-0.141421
2.5	-0.240832	-0.248395	-0.19799	-0.19105	-0.240832	-0.247588
3	-0.390512	-0.396989	-0.311448	-0.311448	-0.389487	-0.396232
3.5	-0.567274	-0.581378	-0.438634	-0.431856	-0.559017	-0.573149
4	-0.765768	-0.779872	-0.587282	-0.580517	-0.743303	-0.75743
4.5	-0.963328	-0.984937	-0.742765	-0.721803	-0.926984	-0.941116
5	-1.146909	-1.161034	-0.876926	-0.863134	-1.082451	-1.096586
5.5	-1.309084	-1.323216	-0.990051	-0.976217	-1.216963	-1.231097
6	-1.421724	-1.428986	-1.074895	-1.0469	-1.308625	-1.322762
6.5	-1.485194	-1.499333	-1.117318	-1.089312	-1.351037	-1.372079
7	-1.484992	-1.499133	-1.117318	-1.089312	-1.343801	-1.35794
7.5	-1.428356	-1.435444	-1.060754	-1.032763	-1.280039	-1.287012
8	-1.301153	-1.315295	-0.961769	-0.933809	-1.152606	-1.166748
8.5	-1.124856	-1.131724	-0.813204	-0.799312	-0.97591	-0.990051
9	-0.886172	-0.900278	-0.636396	-0.622415	-0.750733	-0.764853
9.5	-0.616117	-0.616117	-0.431393	-0.410122	-0.486004	-0.494065
10	-0.332415	-0.332415	-0.192094	-0.184391	0.152971	0.161245
10.5	0.147648	0.147648	0.076158	0.076158	0.465188	0.465188
11	0.43909	0.447772	0.362353	0.348281	0.793221	0.807094
11.5	0.728011	0.742024	0.587282	0.580517	0.898721	0.904434
12	0.896437	0.904268	0.686222	0.67897	0.934773	0.948683
12.5	0.968297	0.982344	0.67624	0.668431	0.943027	0.951315
13	0.976166	0.982344	0.60803	0.6	0.895879	0.909725
13.5	0.906035	0.91214	0.5	0.492037	0.796116	0.80455
14	0.77801	0.77801	0.35805	0.35609	0.65192	0.660379
14.5	0.594054	0.6	0.208087	0.2	0.45793	0.45793
15	0.352278	0.35805	0.04	-0.031623	0.219545	0.224722
15.5	0.08544	0.08544	-0.178045	-0.178045	-0.072111	-0.064031
16	-0.212132	-0.212132	-0.361248	-0.367967	-0.382099	-0.382099
16.5	-0.517397	-0.517397	-0.530754	-0.530754	-0.664831	-0.671789
17	-0.801561	-0.808084	-0.679412	-0.679412	-0.883912	-0.891067
17.5	-1.028251	-1.034795	-0.813449	-0.799812	-1.039663	-1.053803
18	-1.182582	-1.196704	-0.912414	-0.905539	-1.145862	-1.16
18.5	-1.273499	-1.287633	-0.982904	-0.968969	-1.195533	-1.216553
19	-1.280039	-1.294179	-0.989949	-0.97591	-1.181059	-1.195199
19.5	-1.202082	-1.216224	-0.933381	-0.912195	-1.096038	-1.11018
20	-1.053803	-1.061037	-0.813204	-0.799062	-0.933488	-0.940691
20.5	-0.815659	-0.822192	-0.629365	-0.615224	-0.694262	-0.701783

21	-0.513128	-0.513128	-0.389487	-0.375366	-0.385876	-0.399625
21.5	0.180278	0.180278	-0.094868	-0.08544	0.2	0.2
22	0.362491	0.362491	0.272029	0.272029	0.732462	0.735731
22.5	0.792023	0.8	0.622896	0.616198	1.034698	1.042929
23	1.116647	1.130708	0.827587	0.820366	1.164989	1.178898
23.5	1.324387	1.338432	0.873212	0.865563	1.267517	1.281405
24	1.454166	1.468196	0.838689	0.830963	1.328533	1.342386
24.5	1.498065	1.512085	0.773369	0.74411	1.336899	1.345288
25	1.470034	1.492012	0.694262	0.672086	1.287012	1.300846
25.5	1.378006	1.392013	0.608769	0.58	1.178855	1.192686
26	1.228007	1.242014	0.495177	0.46669	1.026255	1.026255
26.5	1.014002	1.028008	0.360694	0.318277	0.809938	0.809938
27	0.736003	0.744043	0.155563	0.114018	0.540833	0.540833
27.5	0.402244	0.410488	-0.106301	-0.164012	0.222036	0.230217
28	0.036056	0.036056	-0.388973	-0.438634	-0.170294	-0.162788
28.5	-0.403113	-0.403113	-0.629365	-0.66468	-0.615549	-0.622415
29	-0.808084	-0.822192	-0.827587	-0.841724	-0.990051	-1.011187
29.5	-1.190966	-1.205073	-1.018627	-1.019117	-1.265899	-1.294179
30	-1.494824	-1.50894	-1.181397	-1.174564	-1.478682	-1.499667
30.5	-1.720029	-1.734157	-1.315523	-1.301768	-1.641463	-1.655597
31	-1.867619	-1.881755	-1.421443	-1.400714	-1.740402	-1.761391
31.5	-1.952076	-1.966215	-1.463865	-1.435862	-1.782807	-1.803802
32	-1.944659	-1.958801	-1.449724	-1.421724	-1.761391	-1.782414
32.5	-1.866762	-1.873846	-1.379021	-1.344173	-1.676216	-1.690355
33	-1.711257	-1.718284	-1.237619	-1.20283	-1.506287	-1.520428
33.5	-1.478276	-1.485194	-1.053803	-1.025914	-1.279883	-1.286934
34	-1.190042	-1.196704	-0.834506	-0.806598	-0.997246	-1.011385
34.5	-0.856037	-0.862148	-0.59397	-0.58	-0.702922	-0.709366
35	-0.518845	-0.523546	-0.332415	-0.318277	-0.326956	-0.340147
35.5	0.212132	0.213776	-0.05099	-0.041231	0.344819	0.342053
36	0.354683	0.364005	0.278029	0.272029	0.796116	0.80455
36.5	0.716101	0.730068	0.566392	0.559732	0.934773	0.948683
37	0.91214	0.934077	0.714213	0.707107	0.970824	0.979081
37.5	1.004241	1.018283	0.702922	0.702922	0.979081	0.995691
38	1.004241	1.018283	0.636003	0.628013	0.931933	0.940319
38.5	0.934077	0.948103	0.522015	0.514004	0.826801	0.840595
39	0.80604	0.80604	0.378021	0.370135	0.674166	0.682642
39.5	0.614003	0.622013	0.222036	0.208087	0.471699	0.480208
40	0.374433	0.380132	#DIV/0!	#DIV/0!	0.233238	0.233238
40.5	0.098489	0.107703	-0.164012	-0.164012	-0.05831	-0.05
41	-0.19105	-0.19105	-0.347131	-0.353836	-0.360694	-0.360694
41.5	-0.489183	-0.489183	-0.516624	-0.502494	-0.643506	-0.643506
42	-0.765768	-0.773369	-0.657951	-0.651153	-0.862786	-0.86977
42.5	-0.992472	-1.006578	-0.785175	-0.778332	-1.011385	-1.025524
43	-1.140219	-1.15434	-0.884138	-0.863134	-1.103449	-1.117587
43.5	-1.216963	-1.231097	-0.940479	-0.926553	-1.145862	-1.16
44	-1.223479	-1.237619	-0.947523	-0.933488	-1.1245	-1.1456
44.5	-1.145513	-1.159655	-0.890955	-0.876926	-1.039471	-1.06066
45	-0.990353	-1.00449	-0.770779	-0.756637	-0.876926	-0.884138
45.5	-0.759276	-0.759276	-0.586941	-0.5728	-0.645368	-0.652993
46	-0.45793	-0.45793	-0.340588	-0.333017	-0.33121	-0.34
46.5	0.148661	0.148661	-0.060828	-0.05099	0.243311	0.241868

47	0.393573	0.393573	0.3	0.3	0.754718	0.754718
47.5	0.798123	0.80604	0.622896	0.622896	1.020784	1.034698
48	1.102588	1.102588	0.813449	0.806226	1.142847	1.151086
48.5	1.288449	1.296302	0.845044	0.837377	1.231463	1.239758
49	1.390144	1.404172	0.810555	0.802808	1.270276	1.284134
49.5	1.420035	1.43405	0.731095	0.715891	1.264792	1.273185
50	1.378006	1.392013	0.65192	0.629682	1.201083	1.214907
50.5	1.278006	1.292014	0.552268	0.530377	1.084528	1.092932
51	1.1	1.114002	0.438634	0.410122	0.909725	0.918096
51.5	0.878009	0.886002	0.275862	0.247588	0.685055	0.693397
52	0.594054	0.602163	0.064031	0.022361	0.410488	0.410488
52.5	0.246982	0.246982	-0.205183	-0.254951	0.072111	0.080623
53	-0.15	-0.15	-0.46669	-0.509313	-0.339706	-0.339706
53.5	-0.544885	-0.544885	-0.68593	-0.707248	-0.749667	-0.763806
54	-0.942603	-0.950158	-0.877268	-0.88459	-1.074895	-1.096038
54.5	-1.28316	-1.297266	-1.054182	-1.047378	-1.315523	-1.343801
55	-1.543826	-1.557947	-1.209669	-1.196035	-1.506951	-1.52794
55.5	-1.73358	-1.75505	-1.329662	-1.308625	-1.641463	-1.655597
56	-1.846212	-1.860349	-1.407302	-1.379311	-1.712133	-1.733119
56.5	-1.895257	-1.909398	-1.421443	-1.393449	-1.725862	-1.747255
57	-1.859704	-1.866815	-1.379021	-1.351037	-1.676216	-1.690355
57.5	-1.746568	-1.753625	-1.280039	-1.252078	-1.555892	-1.56285
58	-1.548709	-1.555892	-1.117318	-1.082451	-1.357719	-1.364734
58.5	-1.288177	-1.294952	-0.919348	-0.891403	-1.103177	-1.11036
59	-0.973088	-0.973088	-0.68593	-0.657951	-0.807217	-0.814678
59.5	-0.629682	-0.638122	-0.431393	-0.410122	-0.482597	-0.490918
60	-0.308058	-0.308058	-0.15	-0.142127	0.17088	0.165529
60.5	0.220227	0.230217	0.166433	0.166433	0.672309	0.672309
61	0.612944	0.621289	0.482701	0.468615	0.920869	0.929139
61.5	0.884081	0.89202	0.693109	0.686222	0.970824	0.984733
62	1.012126	1.026158	0.73	0.722496	1.001249	1.015135
62.5	1.05423	1.06827	0.684105	0.67624	0.990202	1.004042
63	1.018283	1.026158	0.586003	0.578014	0.912688	0.926499
63.5	0.920054	0.934077	0.45607	0.448219	0.790759	0.80455
64	0.764003	0.77801	0.314006	0.306105	0.62434	0.638122
64.5	0.558032	0.564004	0.158114	0.15	0.413401	0.4219
65	0.310644	0.310644	-0.041231	-0.044721	0.161245	0.174929
65.5	0.041231	0.041231	-0.234307	-0.240832	-0.134536	-0.127279
66	-0.268701	-0.268701	-0.410366	-0.410366	-0.445533	-0.445533
66.5	-0.559732	-0.567274	-0.565862	-0.559017	-0.714213	-0.714213
67	-0.829759	-0.84386	-0.700357	-0.693542	-0.912195	-0.926337
67.5	-1.034795	-1.048904	-0.820731	-0.813941	-1.053803	-1.060754
68	-1.168461	-1.182582	-0.905207	-0.891403	-1.131724	-1.145862
68.5	-1.231097	-1.245231	-0.947629	-0.933488	-1.16	-1.174138
69	-1.209339	-1.223479	-0.940479	-0.919348	-1.117318	-1.131459
69.5	-1.117229	-1.131371	-0.876812	-0.855628	-1.011187	-1.025329
70	-0.947945	-0.962081	-0.742496	-0.721249	-0.834865	-0.848999
70.5	-0.710634	-0.710634	-0.551725	-0.530377	-0.596657	-0.604401
71	-0.403113	-0.403113	-0.298329	-0.290689	-0.27313	-0.282312
71.5	0.136015	0.136015	0.044721	0.036056	0.300832	0.300832
72	0.420595	0.420595	0.314006	0.314006	0.773886	0.773886
72.5	0.798123	0.798123	0.622896	0.616198	0.998649	1.006876

73	1.060424	1.066677	0.792465	0.785175	1.106797	1.106797
73.5	1.224418	1.238467	0.816884	0.809197	1.173243	1.181524
74	1.304186	1.318218	0.768375	0.760592	1.198165	1.206524
74.5	1.320038	1.334054	0.68884	0.673573	1.17047	1.178855
75	1.264002	1.270039	0.595483	0.580517	1.098362	1.106752
75.5	1.136002	1.15	0.488365	0.466905	0.962549	0.967988
76	0.958019	0.964002	0.353836	0.332415	0.773886	0.787718
76.5	0.722011	0.730068	0.184391	0.155563	0.540833	0.549181
77	0.424382	0.438292	-0.042426	-0.078102	0.266271	0.266271
77.5	0.092195	0.092195	-0.296985	-0.332415	-0.084853	-0.084853
78	-0.29	-0.29	-0.530377	-0.551543	-0.488365	-0.495177
78.5	-0.680147	-0.680147	-0.728629	-0.735527	-0.862786	-0.86977
79	-1.042353	-1.048904	-0.905539	-0.905539	-1.131459	-1.1456
79.5	-1.332066	-1.34618	-1.068316	-1.061508	-1.336899	-1.35794
80	-1.550516	-1.571369	-1.202414	-1.188697	-1.492816	-1.513803
80.5	-1.705315	-1.719448	-1.294179	-1.280352	-1.59176	-1.620031
81	-1.782414	-1.796552	-1.350741	-1.322762	-1.634166	-1.655174
81.5	-1.789106	-1.796274	-1.343577	-1.315523	-1.61966	-1.633799
82	-1.711198	-1.718284	-1.272871	-1.244829	-1.527613	-1.548709
82.5	-1.555699	-1.569841	-1.1456	-1.117587	-1.37186	-1.393018
83	-1.330038	-1.336899	-0.961769	-0.933809	-1.152606	-1.166748
83.5	-1.048904	-1.056456	-0.742496	-0.728629	-0.88459	-0.891964
84	-0.724224	-0.730068	-0.509117	-0.487955	-0.584123	-0.59203
84.5	-0.399249	-0.399249	-0.248395	-0.226716	0.19	0.2
85	0.164012	0.164012	0.063246	0.063246	0.509902	0.505668
85.5	0.483735	0.497393	0.384187	0.376431	0.865332	0.879204
86	0.814002	0.82801	0.643817	0.637024	0.970824	0.976524
86.5	0.990202	1.012126	0.743303	0.735935	1.015135	1.029029
87	1.076151	1.090183	0.726223	0.718401	1.031746	1.04561
87.5	1.076151	1.090183	0.642028	0.634114	0.984784	0.990202
88	1.020049	1.026158	0.534135	0.526308	0.890449	0.898888
88.5	0.9	0.906035	0.406079	0.390512	0.754718	0.768505
89	0.722011	0.728011	0.264008	0.248395	0.571402	0.579828
89.5	0.494065	0.494065	0.09434	0.080623	0.346699	0.346699
90	0.224722	0.233238	-0.114018	-0.120416	0.080623	0.080623
90.5	-0.067082	-0.067082	-0.311448	-0.318277	-0.226274	-0.226274
91	-0.346554	-0.353836	-0.466905	-0.481041	-0.530377	-0.530377
91.5	-0.637809	-0.645368	-0.615549	-0.615549	-0.78492	-0.78492
92	-0.893756	-0.900278	-0.742765	-0.735935	-0.95462	-0.968762
92.5	-1.077126	-1.083744	-0.848999	-0.834865	-1.067942	-1.082081
93	-1.182582	-1.196704	-0.912414	-0.905539	-1.138991	-1.152779
93.5	-1.216963	-1.231097	-0.940479	-0.926553	-1.145862	-1.16
94	-1.181059	-1.195199	-0.919239	-0.905207	-1.089036	-1.103177
94.5	-1.074802	-1.088944	-0.841487	-0.827345	-0.968762	-0.982904
95	-0.898721	-0.905539	-0.700071	-0.68593	-0.792465	-0.799812
95.5	-0.65437	-0.662193	-0.509313	-0.502096	-0.548179	-0.562228
96	-0.371214	-0.371214	-0.270185	-0.270185	-0.243516	-0.252982
96.5	0.127279	0.134536	0.042426	0.036056	0.316228	0.313209
97	0.411825	0.411825	0.314006	0.314006	0.751665	0.751665
97.5	0.748131	0.756042	0.594643	0.587963	0.948683	0.962601
98	0.988585	1.002646	0.742765	0.742496	1.034698	1.048618
98.5	1.132299	1.138508	0.766942	0.759276	1.087244	1.101136

99	1.190168	1.204201	0.726223	0.718401	1.09	1.103857
99.5	1.184061	1.190168	0.632535	0.62482	1.048475	1.062309
100	1.114002	1.120045	0.532635	0.517397	0.962549	0.976371
100.5	0.978008	0.992018	0.418688	0.403609	0.823772	0.832166
101	0.786003	0.79404	0.276586	0.254951	0.621289	0.629682
101.5	0.544059	0.552178	0.086023	0.064031	0.38833	0.396611
102	0.255539	0.260768	-0.134536	-0.155563	0.102956	0.108167
102.5	-0.089443	-0.076158	-0.360694	-0.381838	-0.247588	-0.247588
103	-0.4245	-0.4245	-0.565862	-0.58	-0.622415	-0.622415
103.5	-0.779872	-0.793977	-0.742765	-0.750067	-0.926337	-0.933488
104	-1.098772	-1.112879	-0.905539	-0.898721	-1.152779	-1.166919
104.5	-1.338693	-1.352812	-1.0469	-1.040048	-1.322762	-1.336899
105	-1.51486	-1.528987	-1.16	-1.138991	-1.43628	-1.457258
105.5	-1.620031	-1.634166	-1.230447	-1.209669	-1.499667	-1.52794
106	-1.654872	-1.662077	-1.251599	-1.230691	-1.513803	-1.534829
106.5	-1.612265	-1.626407	-1.216306	-1.195199	-1.456915	-1.478005
107	-1.506154	-1.513209	-1.124322	-1.096221	-1.343577	-1.357719
107.5	-1.322762	-1.329662	-0.97591	-0.947945	-1.159655	-1.166748
108	-1.07629	-1.083744	-0.78492	-0.756902	-0.919674	-0.926984
108.5	-0.784092	-0.784092	-0.558659	-0.544518	-0.646607	-0.65437
109	-0.474131	-0.474131	-0.311448	-0.297321	-0.291548	-0.304631
109.5	0.1772	0.1772	0.041231	0.031623	0.335261	0.332415
110	0.371618	0.380789	0.292062	0.292062	0.787718	0.796116
110.5	0.736003	0.744043	0.580517	0.573847	0.948683	0.956922
111	0.954254	0.968297	0.728354	0.728354	1.006876	1.015135
111.5	1.06827	1.082312	0.738783	0.731095	1.037304	1.05119
112	1.104219	1.118258	0.678012	0.670075	1.026255	1.031746
112.5	1.076151	1.090183	0.584123	0.576281	0.962549	0.962549
113	0.992018	1.006032	0.47634	0.460977	0.8544	0.862844
113.5	0.85	0.864002	0.348281	0.333017	0.701783	0.710211
114	0.658027	0.658027	0.2	0.184391	0.4993	0.513128
114.5	0.416173	0.424382	0.03	0.01	0.274591	0.274591
115	0.147648	0.156525	-0.176918	-0.19799	0.014142	0.014142
115.5	-0.142127	-0.142127	-0.374833	-0.381838	-0.311448	-0.311448
116	-0.4245	-0.431856	-0.52345	-0.52345	-0.608276	-0.615224
116.5	-0.701783	-0.709366	-0.657951	-0.657951	-0.834386	-0.841487
117	-0.936056	-0.950158	-0.778332	-0.764199	-0.990051	-0.997046
117.5	-1.097862	-1.105351	-0.863134	-0.856329	-1.089312	-1.103449
118	-1.189285	-1.203412	-0.919348	-0.905539	-1.138991	-1.152779
118.5	-1.20283	-1.216963	-0.926337	-0.912414	-1.131724	-1.145862
119	-1.152779	-1.166919	-0.890955	-0.876926	-1.060754	-1.074895
119.5	-1.039471	-1.046518	-0.806102	-0.78492	-0.940479	-0.947629
120	-0.856329	-0.87046	-0.671789	-0.650538	-0.750067	-0.75743
120.5	-0.626259	-0.626259	-0.488365	-0.473814	-0.520096	-0.528015
121	-0.357771	-0.362353	-0.270185	-0.256125	-0.230868	-0.243516
121.5	0.122066		0.036056		0.291204	
122	0.357771		0.272029		0.696419	
122.5	0.664003		0.538145		0.890505	
123						

| Node No. |
|----------|----------|----------|----------|----------|
| 4300     | 3814     | 3290     | 3011     | 2708     |
| Easting  | Northing | Easting  | Northing | Easting  |
| 1519310  | 554071.3 | 1516745  | 550582.4 | 1514465  |
|          |          |          |          | 545904.5 |
|          |          |          |          | 1511955  |
|          |          |          |          | 543708.5 |
|          |          |          |          | 1511532  |

Velocity, fps		Velocity, fps		Velocity, fps		Velocity, fps		Velocity	
Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan	Existing	
-0.05831	-0.064031	-0.053852	-0.05831	-0.044721	-0.044721	-0.042426	-0.05	-0.028284	
-0.05831	-0.064031	-0.053852	-0.05831	-0.044721	-0.044721	-0.042426	-0.05	-0.028284	
-0.064031	-0.064031	-0.053852	-0.067082	-0.05	-0.05831	-0.05	-0.05	-0.042426	
-0.078102	-0.084853	-0.076158	-0.089443	-0.076158	-0.076158	-0.080623	-0.080623	-0.067082	
-0.127279	-0.134536	-0.143178	-0.143178	-0.148661	-0.148661	-0.148661	-0.148661	-0.126491	
-0.212132	-0.219317	-0.254951	-0.264008	-0.262488	-0.262488	-0.272029	-0.272029	-0.247386	
-0.339411	-0.346554	-0.407185	-0.420476	-0.420595	-0.420595	-0.436807	-0.436807	-0.41	
-0.487955	-0.494975	-0.586003	-0.595063	-0.588218	-0.597746	-0.61131	-0.61131	-0.572713	
-0.643506	-0.643506	-0.74686	-0.755844	-0.765376	-0.76844	-0.776209	-0.778845	-0.737564	
-0.792086	-0.799062	-0.881022	-0.885494	-0.904434	-0.913947	-0.914822	-0.914822	-0.894986	
-0.926553	-0.933488	-0.970618	-0.97949	-1.008811	-1.008811	-1.031601	-1.031601	-1.00896	
-1.039663	-1.046614	-1.02	-1.028834	-1.072054	-1.072054	-1.107249	-1.116826	-1.072007	
-1.1245	-1.1245	-1.033538	-1.038316	-1.088118	-1.097679	-1.151347	-1.151347	-1.106029	
-1.167262	-1.174138	-0.998499	-1.007224	-1.066068	-1.066068	-1.141797	-1.15434	-1.077033	
-1.16	-1.166919	-0.922822	-0.936483	-1	-1	-1.094166	-1.094166	-1.016514	
-1.11072	-1.117587	-0.802621	-0.807775	-0.892861	-0.892861	-0.992975	-1.002447	-0.905207	
-1.00449	-1.00449	-0.621289	-0.629682	-0.734983	-0.732462	-0.850941	-0.850941	-0.765376	
-0.848999	-0.848999	-0.380132	-0.386005	-0.545711	-0.543415	-0.664831	-0.668506	-0.575847	
-0.651153	-0.657951	-0.084853	-0.084853	-0.315753	-0.315753	-0.43382	-0.442832	-0.357771	
-0.432782	-0.439318	0.192094	0.2	-0.060828	-0.060828	-0.184391	-0.184391	-0.1253	
-0.174929	-0.174929	0.375366	0.382884	0.234094	0.246982	0.148661	0.148661	0.235372	
0.147648	0.143178	0.528015	0.536004	0.515461	0.515461	0.411096	0.411096	0.512445	
0.459674	0.452769	0.699714	0.713442	0.749466	0.749466	0.61	0.61	0.761577	
0.729178	0.729178	0.836481	0.85	0.898888	0.898888	0.713092	0.713092	0.929731	
0.835464	0.8422	0.907855	0.916788	0.973088	0.973088	0.774919	0.774919	0.995389	
0.813449	0.820366	0.91236	0.925743	0.95462	0.963846	0.797057	0.797057	0.980867	
0.749667	0.756637	0.86764	0.86764	0.869253	0.869253	0.764853	0.764853	0.896939	
0.657647	0.664831	0.755844	0.755844	0.724983	0.724983	0.684251	0.684251	0.766942	
0.52345	0.530377	0.599333	0.599333	0.541202	0.541202	0.537122	0.537122	0.600083	
0.353836	0.353836	0.398121	0.402492	0.330151	0.330151	0.352278	0.352278	0.398246	
0.136015	0.142127	0.165529	0.165529	0.114018	0.111803	0.147648	0.147648	0.184391	
-0.134536	-0.128062	-0.116619	-0.116619	-0.220907	-0.220907	-0.184391	-0.184391	-0.17	
-0.388973	-0.388973	-0.424853	-0.424853	-0.457056	-0.457056	-0.434166	-0.434166	-0.410122	
-0.601415	-0.601415	-0.70214	-0.70214	-0.674463	-0.674463	-0.672681	-0.672681	-0.642806	
-0.756902	-0.763806	-0.894427	-0.903383	-0.850706	-0.850706	-0.841724	-0.841724	-0.82201	
-0.876926	-0.891067	-1.001848	-1.001848	-0.974064	-0.974064	-0.953362	-0.953362	-0.941488	
-0.968969	-0.97591	-1.015332	-1.02	-1.024597	-1.037304	-1.012423	-1.022008	-1.006628	
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0.390512	0.376431	0.696419	0.701783	0.711688	0.711688	0.600167	0.61	0.720069
0.771038	0.771038	0.94414	0.94414	0.996243	0.996243	0.844038	0.844038	1.041201
1.011781	1.018627	1.118034	1.118034	1.199708	1.209049	1.008811	1.008811	1.246515
1.074895	1.089036	1.225398	1.225398	1.298075	1.298075	1.140175	1.140175	1.351925
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1.053613	1.067755	1.234382	1.247758	1.216306	1.220041	1.192309	1.192309	1.337946
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0.403609	0.411096	0.411461	0.424853	0.311448	0.311448	0.38833	0.38833	0.470106
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0.368782	0.354683	0.710211	0.718679	0.762168	0.762168	0.606712	0.608276	0.781025
0.700928	0.700928	0.881192	0.894707	0.943398	0.943398	0.722772	0.725328	0.964624
0.871149	0.877838	0.952575	0.961509	1.017693	1.026937	0.781857	0.791202	1.034698
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0.997647	0.997647	1.086738	1.095673	1.177455	1.177455	0.986712	0.986712	1.214907
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-0.693542	-0.700928	-0.804984	-0.804984	-0.77201	-0.77201	-0.7571	-0.7571	-0.735527
-0.820366	-0.827587	-0.943663	-0.943663	-0.907579	-0.907579	-0.894986	-0.894986	-0.874757
-0.905207	-0.919348	-0.992975	-0.997647	-0.983514	-0.983514	-0.96566	-0.96566	-0.963172
-0.95483	-0.968969	-0.975295	-0.988838	-1.002447	-1.002447	-0.990404	-0.990404	-0.987168
-0.968969	-0.983107	-0.904268	-0.913017	-0.945569	-0.955092	-0.964624	-0.964624	-0.938616
-0.933809	-0.947945	-0.778974	-0.783901	-0.838153	-0.847703	-0.872812	-0.872812	-0.829699
-0.856329	-0.856329	-0.596825	-0.596825	-0.6772	-0.6772	-0.730548	-0.733894	-0.6772
-0.700928	-0.700928	-0.338378	-0.338378	-0.465725	-0.465725	-0.529245	-0.529245	-0.477598
-0.49679	-0.503289	-0.042426	-0.028284	-0.203961	-0.203961	-0.286531	-0.286531	-0.241868
-0.246982	-0.252389	0.242074	0.25	0.098489	0.098489	0.076158	0.076158	0.106301
0.10198	0.090554	0.472017	0.472017	0.408044	0.408044	0.320624	0.320624	0.390128
0.425206	0.425206	0.682642	0.682642	0.692604	0.692604	0.588558	0.588558	0.690507
0.735935	0.742765	0.863539	0.872353	0.910824	0.914166	0.771298	0.771298	0.946414
0.912853	0.919674	0.98387	0.997296	1.060424	1.060424	0.879318	0.879318	1.09444
0.933488	0.947629	1.046518	1.046518	1.108603	1.108603	0.952733	0.952733	1.140175

0.898053	0.912195	1.046518	1.046518	1.067755	1.077033	0.9717	0.980867	1.1179
0.848528	0.86267	0.988433	0.992824	0.973088	0.973088	0.931075	0.931075	1.03465
0.763675	0.763675	0.881022	0.89	0.828553	0.837735	0.832586	0.832586	0.917606
0.636396	0.643506	0.733485	0.733485	0.657419	0.657419	0.675426	0.684471	0.753923
0.473814	0.473814	0.541295	0.541295	0.452769	0.452769	0.492443	0.492443	0.550364
0.254558	0.261725	0.308707	0.308707	0.212603	0.212603	0.262488	0.270185	0.3245
-0.014142	-0.014142	0.02	0.02	-0.147648	-0.147648	-0.1	-0.1	-0.121655
-0.332415	-0.339706	-0.317648	-0.317648	-0.411947	-0.411947	-0.361248	-0.361248	-0.342345
-0.608769	-0.622896	-0.661891	-0.661891	-0.679117	-0.679117	-0.672681	-0.672681	-0.64195
-0.82807	-0.8422	-0.939149	-0.939149	-0.920489	-0.920489	-0.912195	-0.921954	-0.900944
-0.983107	-0.997246	-1.113643	-1.113643	-1.097315	-1.097315	-1.084159	-1.093846	-1.082589
-1.117318	-1.131459	-1.19	-1.203536	-1.204865	-1.214331	-1.206027	-1.206027	-1.20075
-1.216553	-1.230447	-1.208305	-1.208305	-1.252278	-1.252278	-1.274873	-1.274873	-1.246635
-1.287245	-1.294179	-1.1772	-1.1772	-1.236649	-1.236649	-1.287362	-1.290349	-1.239395
-1.301384	-1.315523	-1.092749	-1.092749	-1.167604	-1.167604	-1.2492	-1.25873	-1.178813
-1.266215	-1.273106	-0.958801	-0.963846	-1.050809	-1.048094	-1.157411	-1.166919	-1.070047
-1.167262	-1.174138	-0.768505	-0.768505	-0.880568	-0.880568	-1.015135	-1.015135	-0.917606
-1.011781	-1.011781	-0.51614	-0.51614	-0.679117	-0.679117	-0.809938	-0.813449	-0.717844
-0.799812	-0.806598	-0.198494	-0.19105	-0.429535	-0.427551	-0.568595	-0.568595	-0.47927
-0.566392	-0.566392	0.136015	0.144222	-0.160312	-0.150333	-0.296816	-0.296816	-0.212603
-0.3	-0.306105	0.361248	0.375366	0.156525	0.165529	0.089443	0.09434	0.165529
0.060828	0.063246	0.51225	0.526308	0.474342	0.474342	0.350143	0.350143	0.460435
0.389487	0.382884	0.704911	0.710211	0.74	0.74	0.598415	0.598415	0.747329
0.721803	0.721803	0.881192	0.885889	0.93984	0.93984	0.742159	0.742159	0.970824
0.891964	0.898721	0.974936	0.98387	1.045466	1.054751	0.828734	0.828734	1.080787
0.898276	0.905207	1.015185	1.015185	1.062309	1.062309	0.882383	0.882383	1.088531
0.848646	0.855628	0.988433	0.992824	0.990051	0.99925	0.881419	0.890505	1.036195
0.78492	0.799062	0.903383	0.91236	0.873212	0.873212	0.827647	0.827647	0.930484
0.68593	0.68593	0.778203	0.791581	0.720139	0.720139	0.720139	0.720139	0.804114
0.544518	0.551543	0.621691	0.621691	0.532353	0.537122	0.572451	0.572451	0.640781
0.374833	0.381838	0.420476	0.429535	0.330151	0.330151	0.377359	0.385876	0.451774
0.162788	0.162788	0.196977	0.196977	0.126491	0.126491	0.178045	0.178045	0.233452
-0.106301	-0.098995	-0.072111	-0.072111	-0.202237	-0.202237	-0.139284	-0.139284	-0.134536
-0.367967	-0.367967	-0.362353	-0.362353	-0.424264	-0.434166	-0.382099	-0.382099	-0.352278
-0.587963	-0.587963	-0.639531	-0.639531	-0.640312	-0.640312	-0.621691	-0.621691	-0.591354
-0.735935	-0.743303	-0.840773	-0.849706	-0.806536	-0.806536	-0.798311	-0.798311	-0.767919
-0.841724	-0.855862	-0.957131	-0.957131	-0.929731	-0.929731	-0.907083	-0.907083	-0.89822
-0.919348	-0.933488	-0.988838	-0.997647	-0.992975	-0.992975	-0.975295	-0.975295	-0.972934
-0.968969	-0.968969	-0.957706	-0.966488	-0.989798	-0.989798	-0.980816	-0.990404	-0.977446
-0.962081	-0.968969	-0.88193	-0.88193	-0.923472	-0.923472	-0.94255	-0.94255	-0.916788
-0.919674	-0.919674	-0.74793	-0.752928	-0.806536	-0.816088	-0.844334	-0.844334	-0.807775
-0.813941	-0.82807	-0.552268	-0.566039	-0.6456	-0.6456	-0.702282	-0.702282	-0.64846
-0.672681	-0.672681	-0.308058	-0.308058	-0.434166	-0.434166	-0.501597	-0.510784	-0.458803
-0.468615	-0.482701	-0.022361	0.01	-0.194165	-0.194165	-0.269258	-0.269258	-0.233238
-0.238537	-0.238537	0.242074	0.25	0.089443	0.089443	0.072801	0.072801	0.098995
0.090554		0.444072		0.376431		0.290172		0.36
0.382884		0.629682		0.629365		0.537587		0.628013
0.664831		0.796492		0.834865		0.696348		0.848999

	Node No.		Node No.		Node No.		Node No.		
	2447		2445		2224		2440		
	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing
	541687	1510224	539824	1511665	539036.2	1508856	537783.3	1511671	536681.8
$\gamma$ , fps	Velocity, fps		Velocity, fps		Velocity, fps		Velocity, fps		
Plan	Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan	
-0.028284	-0.028284	-0.028284	0.01	-0.014142	-0.014142	-0.014142	0	0	
-0.028284	-0.028284	-0.028284	0.01	-0.014142	-0.014142	-0.014142	0	0	
-0.042426	-0.028284	-0.036056	-0.014142	-0.014142	-0.022361	-0.022361	-0.01	-0.01	
-0.067082	-0.053852	-0.053852	-0.041231	-0.041231	-0.05099	-0.053852	-0.04	-0.04	
-0.136015	-0.126491	-0.126491	-0.111803	-0.121655	-0.123693	-0.123693	-0.11	-0.12	
-0.247386	-0.240416	-0.240416	-0.240832	-0.241868	-0.245153	-0.245153	-0.23	-0.23	
-0.41	-0.395601	-0.405216	-0.401995	-0.401995	-0.398121	-0.398121	-0.370135	-0.380132	
-0.584637	-0.5728	-0.5728	-0.563205	-0.563205	-0.565155	-0.565155	-0.530848	-0.530848	
-0.749533	-0.752861	-0.752861	-0.715681	-0.715681	-0.743303	-0.752861	-0.68469	-0.68469	
-0.894986	-0.910934	-0.910934	-0.85	-0.85	-0.92358	-0.92358	-0.82201	-0.831865	
-1.00896	-1.027862	-1.040433	-0.933809	-0.933809	-1.051095	-1.060424	-0.917824	-0.927631	
-1.084159	-1.103676	-1.113194	-0.988433	-0.988433	-1.127209	-1.140175	-0.972934	-0.972934	
-1.106029	-1.13842	-1.13842	-0.992472	-0.992472	-1.16619	-1.16619	-0.977446	-0.977446	
-1.086692	-1.119464	-1.119464	-0.965401	-0.965401	-1.138464	-1.147693	-0.941116	-0.941116	
-1.016514	-1.059481	-1.059481	-0.887694	-0.897385	-1.079352	-1.079352	-0.851645	-0.851645	
-0.917606	-0.94921	-0.958593	-0.778845	-0.778845	-0.970824	-0.970824	-0.736817	-0.736817	
-0.765376	-0.804114	-0.813449	-0.632456	-0.632456	-0.809506	-0.818413	-0.583095	-0.583095	
-0.575847	-0.627694	-0.627694	-0.451885	-0.451885	-0.632851	-0.632851	-0.391152	-0.391152	
-0.357771	-0.415933	-0.415933	-0.254558	-0.254558	-0.417732	-0.417732	-0.199249	-0.199249	
-0.1253	-0.162788	-0.162788	0.152643	0.152643	-0.230868	-0.230868	0.322025	0.322025	
0.235372	0.180278	0.180278	0.325576	0.325576	0.380132	0.380132	0.60407	0.60407	
0.512445	0.410122	0.410122	0.520384	0.520384	0.761183	0.761183	0.761052	0.761052	
0.761577	0.60531	0.60531	0.664831	0.664831	1.076894	1.076894	0.821523	0.821523	
0.929731	0.802309	0.802309	0.726911	0.726911	1.234544	1.234544	0.86209	0.86209	
0.995389	0.906697	0.906697	0.723395	0.723395	1.256861	1.256861	0.852877	0.852877	
0.980867	0.911976	0.911976	0.670671	0.670671	1.206027	1.206027	0.793095	0.793095	
0.896939	0.840952	0.840952	0.590339	0.590339	1.098954	1.098954	0.683593	0.683593	
0.766942	0.740608	0.740608	0.49	0.49	0.943716	0.943716	0.554437	0.554437	
0.600083	0.590085	0.590085	0.340588	0.340588	0.752861	0.76243	0.386394	0.386394	
0.398246	0.410122	0.410122	0.162788	0.162788	0.54231	0.551543	0.187883	0.187883	
0.184391	0.184391	0.184391	-0.067082	-0.067082	0.328024	0.328024	-0.106301	-0.106301	
-0.17	-0.120416	-0.120416	-0.320156	-0.320156	-0.190263	-0.190263	-0.325576	-0.325576	
-0.410122	-0.389102	-0.389102	-0.550091	-0.550091	-0.338378	-0.338378	-0.534603	-0.534603	
-0.642806	-0.633246	-0.633246	-0.730274	-0.730274	-0.560803	-0.560803	-0.718471	-0.718471	
-0.82201	-0.822192	-0.822192	-0.853756	-0.853756	-0.772528	-0.772528	-0.863134	-0.863134	
-0.951262	-0.952103	-0.952103	-0.929139	-0.929139	-0.95462	-0.95462	-0.937443	-0.939415	
-1.006628	-1.018332	-1.018332	-0.942019	-0.942019	-1.04	-1.04	-0.943663	-0.943663	
-1.001699	-1.008811	-1.008811	-0.89627	-0.906091	-1.026937	-1.030776	-0.897385	-0.897385	
-0.921792	-0.936056	-0.936056	-0.810247	-0.810247	-0.949368	-0.949368	-0.800812	-0.800812	
-0.781601	-0.803243	-0.806536	-0.671863	-0.671863	-0.809568	-0.809568	-0.64846	-0.64846	
-0.591354	-0.620322	-0.620322	-0.477598	-0.477598	-0.619112	-0.627694	-0.451774	-0.451774	
-0.344384	-0.380132	-0.380132	-0.242074	-0.242074	-0.388973	-0.388973	-0.223607	-0.223607	

0.09	-0.104403	-0.104403	0.155563	0.155563	0.218403	0.218403	0.344384	0.344384
0.36	0.310644	0.310644	0.42107	0.42107	0.528867	0.528867	0.694622	0.694622
0.721803	0.602993	0.612944	0.681836	0.681836	0.989949	0.989949	0.910879	0.910879
1.041201	0.882836	0.882836	0.868332	0.868332	1.339888	1.339888	1.020784	1.030776
1.255906	1.132828	1.132828	0.967471	0.967471	1.538051	1.538051	1.100727	1.100727
1.351925	1.254831	1.254831	1.004988	1.004988	1.615333	1.627421	1.120714	1.120714
1.376408	1.272517	1.282498	1.003195	1.003195	1.625054	1.625054	1.101136	1.101136
1.337946	1.241451	1.251439	0.961873	0.961873	1.598312	1.598312	1.051713	1.051713
1.265306	1.160388	1.170385	0.880511	0.880511	1.52345	1.52345	0.973293	0.973293
1.129469	1.040048	1.050048	0.77026	0.77026	1.398428	1.398428	0.864696	0.864696
0.962081	0.890056	0.900056	0.622013	0.622013	1.220656	1.220656	0.707107	0.707107
0.739256	0.700643	0.700643	0.439318	0.439318	0.971442	0.980816	0.502195	0.502195
0.470106	0.462709	0.462709	0.21095	0.21095	0.693181	0.693181	0.250599	0.250599
0.187883	0.17	0.17	-0.166433	-0.166433	0.39598	0.39598	-0.169706	-0.169706
-0.310483	-0.283019	-0.283019	-0.49163	-0.49163	-0.291548	-0.291548	-0.470744	-0.470744
-0.680661	-0.690797	-0.690797	-0.810555	-0.810555	-0.559464	-0.559464	-0.779295	-0.789177
-1.001299	-1.002447	-1.011929	-1.063814	-1.063814	-0.915478	-0.915478	-1.053803	-1.053803
-1.235557	-1.243262	-1.243262	-1.220533	-1.230447	-1.244227	-1.247878	-1.229837	-1.229837
-1.375391	-1.388848	-1.401321	-1.295531	-1.295531	-1.433771	-1.433771	-1.304186	-1.314002
-1.440694	-1.467515	-1.467515	-1.321968	-1.321968	-1.50632	-1.50632	-1.329812	-1.329812
-1.443087	-1.483139	-1.483139	-1.317953	-1.317953	-1.509868	-1.51921	-1.292942	-1.292942
-1.40684	-1.454648	-1.457841	-1.251719	-1.261467	-1.476279	-1.485564	-1.224827	-1.224827
-1.317346	-1.366236	-1.366236	-1.152085	-1.152085	-1.389244	-1.389244	-1.106029	-1.106029
-1.174436	-1.220901	-1.220901	-1.004241	-1.006876	-1.235678	-1.235678	-0.939628	-0.939628
-0.983717	-1.03465	-1.044031	-0.819085	-0.819085	-1.042161	-1.042161	-0.73736	-0.746726
-0.752728	-0.817068	-0.826378	-0.600083	-0.600083	-0.810062	-0.818841	-0.501199	-0.501199
-0.492443	-0.568595	-0.568595	-0.35609	-0.35609	-0.552178	-0.552178	-0.260768	-0.260768
-0.212132	-0.288444	-0.288444	0.181108	0.171172	-0.304138	-0.304138	0.310644	0.310644
0.196977	0.120416	0.120416	0.313209	0.313209	0.336006	0.336006	0.626498	0.626498
0.500899	0.370135	0.370135	0.52	0.520096	0.766877	0.766877	0.802247	0.802247
0.781025	0.594138	0.594138	0.674759	0.68469	1.151217	1.151217	0.863713	0.863713
0.967988	0.810494	0.810494	0.745453	0.745453	1.314724	1.314724	0.894539	0.894539
1.034698	0.935361	0.945304	0.731095	0.731095	1.328533	1.328533	0.8956	0.8956
1.016366	0.941329	0.941329	0.68	0.68	1.274873	1.274873	0.827345	0.827345
0.923093	0.870517	0.870517	0.590339	0.590339	1.155206	1.155206	0.70859	0.70859
0.78924	0.760592	0.760592	0.480937	0.480937	1	1	0.570701	0.570701
0.609262	0.610082	0.610082	0.333766	0.333766	0.800062	0.800062	0.402616	0.402616
0.411825	0.420119	0.420119	0.165529	0.165529	0.577754	0.586941	0.21095	0.21095
0.192094	0.194165	0.194165	-0.092195	-0.092195	0.35	0.35	-0.1253	-0.1253
-0.166433	-0.114018	-0.114018	-0.321403	-0.321403	0.200998	0.200998	-0.3228	-0.3228
-0.4005	-0.380132	-0.380132	-0.55	-0.55	-0.320156	-0.320156	-0.527731	-0.527731
-0.631981	-0.623939	-0.623939	-0.720278	-0.720278	-0.523927	-0.523927	-0.710211	-0.710211
-0.810494	-0.803243	-0.803243	-0.843801	-0.843801	-0.731642	-0.731642	-0.845281	-0.845281
-0.919837	-0.920489	-0.923472	-0.907965	-0.907965	-0.913893	-0.913893	-0.90802	-0.917824
-0.975141	-0.986712	-0.986712	-0.910824	-0.910824	-0.99925	-0.99925	-0.912195	-0.921954
-0.958019	-0.967678	-0.967678	-0.864928	-0.864928	-0.986154	-0.986154	-0.865852	-0.865852
-0.880568	-0.89493	-0.89493	-0.778781	-0.778781	-0.90471	-0.90471	-0.76922	-0.76922
-0.75	-0.762168	-0.762168	-0.640312	-0.640312	-0.76922	-0.778203	-0.616847	-0.626259
-0.559732	-0.579396	-0.579396	-0.445982	-0.445982	-0.583095	-0.583095	-0.420595	-0.420595
-0.31305	-0.34	-0.34	-0.212603	-0.212603	-0.353836	-0.353836	-0.202485	-0.202485
0.08544	0.09	0.09	0.164012	0.164012	0.219317	0.219317	0.358469	0.358469
0.37	0.330151	0.330151	0.431045	0.431045	0.536004	0.545711	0.703491	0.703491

0.721803	0.614003	0.614003	0.681836	0.681836	0.978673	0.978673	0.900888	0.900888
1.028834	0.872983	0.872983	0.857088	0.857088	1.310343	1.310343	1.010792	1.010792
1.214907	1.101681	1.101681	0.93771	0.947629	1.487078	1.487078	1.060754	1.060754
1.298075	1.205031	1.205031	0.965194	0.965194	1.55467	1.55467	1.070747	1.070747
1.313202	1.212023	1.222007	0.953362	0.953362	1.552321	1.552321	1.040769	1.040769
1.265306	1.171068	1.171068	0.901998	0.901998	1.494021	1.494021	0.981275	0.981275
1.17047	1.080417	1.080417	0.810555	0.810555	1.409433	1.409433	0.892749	0.892749
1.02528	0.950053	0.950053	0.690072	0.690072	1.262418	1.262418	0.764199	0.764199
0.839345	0.790063	0.790063	0.532353	0.532353	1.075174	1.075174	0.596825	0.596825
0.61327	0.581378	0.581378	0.342053	0.342053	0.820792	0.820792	0.386005	0.386005
0.336006	0.325576	0.325576	0.108167	0.108167	0.538516	0.538516	0.144222	0.144222
-0.147648	-0.100499	-0.100499	-0.286356	-0.286356	0.291548	0.291548	-0.269258	-0.269258
-0.451774	-0.438292	-0.438292	-0.610328	-0.610328	-0.367696	-0.367696	-0.577062	-0.577062
-0.79404	-0.800562	-0.800562	-0.890898	-0.890898	-0.680294	-0.680294	-0.86977	-0.86977
-1.067052	-1.069018	-1.069018	-1.105486	-1.105486	-1.023181	-1.023181	-1.104762	-1.104762
-1.259286	-1.272006	-1.272006	-1.221884	-1.231787	-1.298075	-1.298075	-1.231666	-1.241491
-1.36565	-1.391761	-1.391761	-1.27738	-1.27738	-1.433771	-1.433771	-1.286546	-1.286546
-1.411559	-1.435897	-1.435897	-1.284562	-1.294372	-1.465367	-1.47472	-1.280976	-1.280976
-1.394633	-1.432515	-1.432515	-1.259286	-1.259286	-1.459623	-1.459623	-1.232234	-1.232234
-1.336638	-1.375682	-1.375682	-1.181271	-1.181271	-1.403887	-1.403887	-1.144771	-1.144771
-1.215648	-1.261943	-1.261943	-1.052616	-1.062309	-1.285496	-1.285496	-1.006876	-1.006876
-1.053613	-1.107249	-1.107249	-0.8956	-0.8956	-1.10982	-1.114002	-0.822192	-0.822192
-0.84119	-0.898888	-0.898888	-0.692892	-0.692892	-0.898944	-0.898944	-0.604152	-0.604152
-0.592368	-0.659242	-0.659242	-0.452769	-0.452769	-0.646607	-0.65192	-0.354683	-0.354683
-0.319061	-0.393573	-0.393573	-0.223607	-0.223607	-0.396232	-0.396232	0.219317	0.219317
0.12083	-0.114018	-0.114018	0.224722	0.233238	0.241661	0.241661	0.50448	0.50448
0.380132	0.282843	0.282843	0.441022	0.441022	0.582409	0.59203	0.752396	0.752396
0.680661	0.521536	0.521536	0.631981	0.631981	1.025914	1.025914	0.842912	0.842912
0.923472	0.739797	0.739797	0.745453	0.745453	1.283199	1.285496	0.894539	0.894539
1.045466	0.929139	0.929139	0.762365	0.762365	1.3544	1.3544	0.924392	0.924392
1.057024	0.972522	0.982497	0.720278	0.720278	1.328533	1.328533	0.885664	0.885664
0.99925	0.93086	0.940851	0.66	0.66	1.247237	1.247237	0.786384	0.796304
0.893197	0.850941	0.850941	0.570088	0.570088	1.108603	1.108603	0.667533	0.667533
0.744648	0.730616	0.730616	0.450999	0.450999	0.936803	0.936803	0.51788	0.51788
0.559464	0.560089	0.56	0.294279	0.294279	0.74	0.74	0.342053	0.342053
0.355106	0.360555	0.360555	0.116619	0.116619	0.523259	0.523259	0.156205	0.156205
0.152315	0.13	0.13	-0.139284	-0.139284	0.304138	0.304138	-0.158114	-0.158114
-0.224722	-0.178045	-0.178045	-0.380132	-0.390128	-0.206155	-0.206155	-0.37855	-0.37855
-0.470106	-0.451885	-0.451885	-0.6	-0.6	-0.368917	-0.368917	-0.575587	-0.575587
-0.683593	-0.674166	-0.674166	-0.7506	-0.760592	-0.583095	-0.583095	-0.749667	-0.749667
-0.853288	-0.84119	-0.84119	-0.864696	-0.874643	-0.798499	-0.798499	-0.874757	-0.874757
-0.951262	-0.952103	-0.952103	-0.919239	-0.919239	-0.95462	-0.95462	-0.929624	-0.929624
-0.987168	-0.996243	-0.996243	-0.912414	-0.912414	-1.008464	-1.008464	-0.921954	-0.921954
-0.958019	-0.964624	-0.967678	-0.855102	-0.864928	-0.976934	-0.976934	-0.856154	-0.856154
-0.868332	-0.872812	-0.872812	-0.759276	-0.759276	-0.886397	-0.886397	-0.75	-0.75
-0.718401	-0.730548	-0.730548	-0.61131	-0.61131	-0.737902	-0.737902	-0.588727	-0.588727
-0.518652	-0.538516	-0.538516	-0.408534	-0.408534	-0.543783	-0.543783	-0.385876	-0.385876
-0.272947	-0.300167	-0.300167	-0.184391	-0.184391	-0.320156	-0.320156	-0.190263	-0.190263
0.098995	0.089443	0.089443	0.197231	0.197231	0.230217	0.230217	0.404969	0.404969
0.400125	0.350143	0.350143	0.440454	0.440454	0.565155	0.565155	0.713442	0.713442
0.721803	0.614003	0.614003	0.671863	0.671863	0.978673	0.978673	0.880909	0.880909
1	0.853288	0.853288	0.837257	0.837257	1.269212	1.279062	0.970824	0.970824

1.17047	1.062121	1.062121	0.906697	0.906697	1.426359	1.436106	1.020784	1.020784
1.234909	1.145295	1.145295	0.91444	0.91444	1.472209	1.481924	1.010792	1.020784
1.2313	1.142147	1.142147	0.88278	0.88278	1.450414	1.450414	0.970824	0.970824
1.161077	1.091146	1.091146	0.822192	0.822192	1.370328	1.380036	0.900888	0.900888
1.053423	0.980459	0.990454	0.730616	0.730616	1.263843	1.263843	0.791581	0.791581
0.898888	0.84	0.84	0.59	0.59	1.097679	1.107249	0.642806	0.642806
0.703847	0.660303	0.660303	0.4219	0.4219	0.891964	0.901388	0.455412	0.465296
0.465296	0.451774	0.451774	0.221359	0.221359	0.648845	0.648845	0.237697	0.237697
0.206155	0.193132	0.193132	-0.092195	-0.092195	0.382884	0.382884	-0.114018	-0.114018
-0.224722	-0.206155	-0.206155	-0.4005	-0.4005	-0.245153	-0.245153	-0.38833	-0.38833
-0.570088	-0.568595	-0.568595	-0.7	-0.71	-0.471699	-0.471699	-0.676018	-0.676018
-0.867006	-0.86977	-0.86977	-0.941329	-0.941329	-0.78	-0.78924	-0.930591	-0.930591
-1.090413	-1.097679	-1.097679	-1.107655	-1.107655	-1.095628	-1.095628	-1.116288	-1.116288
-1.24952	-1.262418	-1.262418	-1.19365	-1.19365	-1.298075	-1.307402	-1.212023	-1.212023
-1.326725	-1.350592	-1.350592	-1.228088	-1.228088	-1.38928	-1.38928	-1.237619	-1.237619
-1.341231	-1.375682	-1.375682	-1.223765	-1.223765	-1.402177	-1.402177	-1.210496	-1.210496
-1.302498	-1.337647	-1.350296	-1.16709	-1.16709	-1.368576	-1.368576	-1.142366	-1.142366
-1.22262	-1.25865	-1.25865	-1.069626	-1.069626	-1.281562	-1.281562	-1.035809	-1.035809
-1.082405	-1.126055	-1.126055	-0.93145	-0.93145	-1.141271	-1.141271	-0.879318	-0.879318
-0.898443	-0.94921	-0.94921	-0.746324	-0.746324	-0.948103	-0.948103	-0.674166	-0.677791
-0.667308	-0.731642	-0.731642	-0.528015	-0.528015	-0.725603	-0.725603	-0.444185	-0.444185
-0.411461	-0.487545	-0.487545	-0.29	-0.29	-0.47634	-0.47634	-0.218403	-0.218403
-0.147648	-0.19105	-0.19105	0.17	0.174929	-0.245153	-0.245153	0.371618	0.371618
0.264764	0.189737	0.189737	0.356931	0.356931	0.416293	0.416293	0.674759	0.674759
0.574282	0.440114	0.440114	0.560357	0.570351	0.853288	0.863134	0.822192	0.822192
0.848999	0.667533	0.667533	0.715681	0.715681	1.204159	1.204159	0.883629	0.883629
1.02528	0.881192	0.881192	0.774145	0.774145	1.35595	1.35595	0.924392	0.924392
1.088531	0.995038	0.994082	0.761052	0.761052	1.366821	1.376408	0.924392	0.924392
1.062309	0.991262	0.991262	0.720069	0.720069	1.31042	1.31042	0.854751	0.854751
0.978621	0.93086	0.93086	0.65	0.65	1.200708	1.210372	0.755381	0.755381
0.857963	0.830963	0.830963	0.550091	0.550091	1.05513	1.0648	0.62514	0.62514
0.700071	0.680294	0.680294	0.42107	0.42107	0.876413	0.886002	0.466905	0.47676
0.509902	0.5001	0.5001	0.254951	0.254951	0.674166	0.674166	0.281603	0.281603
0.294109	0.292746	0.292746	0.064031	0.064031	0.447772	0.447772	0.102956	0.102956
-0.121655	0.080623	0.080623	-0.212132	-0.212132	0.252389	0.252389	-0.215407	-0.215407
-0.286356	-0.260768	-0.269258	-0.450111	-0.450111	-0.238537	-0.238537	-0.43566	-0.43566
-0.530377	-0.523927	-0.523927	-0.650077	-0.650077	-0.429418	-0.429418	-0.626498	-0.626498
-0.736817	-0.7245	-0.7245	-0.791012	-0.791581	-0.64622	-0.64622	-0.790759	-0.790759
-0.874757	-0.86977	-0.86977	-0.885664	-0.885664	-0.84309	-0.84309	-0.894427	-0.894427
-0.963172	-0.964624	-0.964624	-0.919239	-0.929139	-0.976934	-0.976934	-0.929624	-0.939415
-0.987168	-0.986712	-0.986712	-0.902552	-0.902552	-1.008464	-1.008464	-0.912195	-0.912195
-0.938616	-0.945569	-0.945569	-0.845281	-0.845281	-0.95462	-0.95462	-0.83678	-0.83678
-0.839345	-0.84119	-0.850706	-0.730068	-0.730068	-0.854927	-0.854927	-0.721249	-0.721249
-0.6772	-0.698928	-0.698928	-0.5728	-0.5728	-0.706612	-0.706612	-0.557136	-0.557136
-0.477598	-0.506952	-0.506952	-0.380789	-0.380789	-0.513128	-0.513128	-0.352278	-0.352278
-0.241868	-0.277849	-0.277849	-0.172047	-0.172047	-0.3	-0.3	0.180278	0.180278
0.106301	0.09434	0.09434	0.205913	0.201246	0.228035	0.228035	0.411096	0.411096
0.390128	0.340147	0.350143	0.431045	0.431045	0.555428	0.555428	0.703491	0.703491
0.690507	0.583095	0.583095	0.65192	0.65192	0.929139	0.939042	0.851469	0.851469
0.946414	0.802309	0.802309	0.786384	0.786384	1.208387	1.208387	0.921358	0.931343
1.09444	0.981529	0.981529	0.845931	0.845931	1.341715	1.341715	0.961301	0.961301
1.140175	1.065692	1.065692	0.843801	0.843801	1.370328	1.370328	0.940851	0.940851

1.1179	1.042353	1.052331	0.802247	0.802247	1.326725	1.326725	0.880909	0.880909
1.03465	0.981275	0.981275	0.73171	0.73171	1.224827	1.224827	0.791012	0.790569
0.917606	0.870517	0.870517	0.631269	0.631269	1.093846	1.093846	0.671193	0.671193
0.753923	0.72	0.72	0.490102	0.490102	0.917606	0.917606	0.511566	0.521536
0.550364	0.530377	0.530377	0.300666	0.310644	0.715122	0.715122	0.323883	0.323883
0.3245	0.314006	0.314006	0.08544	0.08544	0.470106	0.470106	0.1	0.1
-0.121655	0.094868	0.094868	-0.200998	-0.200998	0.255539	0.255539	-0.208806	-0.208806
-0.342345	-0.33121	-0.33121	-0.510098	-0.510392	-0.297321	-0.297321	-0.482597	-0.482597
-0.65192	-0.64622	-0.64622	-0.76	-0.76	-0.559464	-0.559464	-0.73437	-0.735527
-0.900944	-0.89493	-0.89493	-0.952575	-0.952575	-0.845044	-0.845044	-0.950368	-0.950368
-1.082589	-1.094806	-1.094806	-1.07912	-1.07912	-1.104943	-1.104943	-1.086738	-1.086738
-1.20075	-1.224132	-1.224132	-1.132828	-1.132828	-1.253555	-1.253555	-1.141403	-1.151217
-1.256344	-1.268267	-1.268267	-1.149348	-1.149348	-1.294488	-1.30384	-1.147563	-1.147563
-1.239395	-1.271299	-1.271299	-1.123788	-1.123788	-1.288759	-1.288759	-1.101136	-1.110856
-1.178813	-1.214331	-1.214331	-1.047855	-1.047855	-1.233086	-1.233086	-1.021078	-1.021078
-1.070047	-1.113283	-1.113283	-0.928924	-0.928924	-1.124011	-1.124011	-0.8956	-0.8956
-0.917606	-0.958593	-0.958593	-0.77201	-0.77201	-0.961769	-0.961769	-0.72111	-0.72111
-0.717844	-0.763217	-0.772528	-0.579396	-0.579396	-0.760592	-0.760592	-0.514296	-0.514296
-0.47927	-0.54626	-0.54626	-0.360555	-0.360555	-0.530094	-0.538238	-0.284253	-0.284253
-0.212603	-0.274591	-0.274591	-0.171172	-0.171172	-0.300167	-0.300167	0.254558	0.254558
0.165529	0.113137	0.113137	0.275136	0.275136	0.290689	0.290689	0.559017	0.568859
0.460435	0.370135	0.370135	0.490102	0.490102	0.684471	0.694262	0.772334	0.772334
0.747329	0.594138	0.594138	0.673647	0.673647	1.085035	1.086738	0.862844	0.862844
0.970824	0.812158	0.812158	0.76531	0.76531	1.304952	1.304952	0.91351	0.91351
1.080787	0.967471	0.967471	0.782304	0.782304	1.370876	1.370876	0.933435	0.933435
1.088531	1.012423	1.012423	0.760592	0.760592	1.351629	1.351629	0.893588	0.893588
1.036195	0.971288	0.981275	0.710282	0.710282	1.261269	1.270945	0.813019	0.813019
0.93984	0.901388	0.901388	0.630317	0.630317	1.144771	1.144771	0.703491	0.713442
0.804114	0.780577	0.780577	0.52	0.52	0.994585	0.994585	0.573149	0.573149
0.640781	0.62	0.62	0.380526	0.380526	0.809568	0.809568	0.414367	0.414367
0.451774	0.430465	0.430465	0.203961	0.203961	0.605392	0.605392	0.221359	0.221359
0.233452	0.22561	0.22561	-0.044721	-0.044721	0.382753	0.382753	-0.072801	-0.072801
-0.134536	-0.094868	-0.094868	-0.270185	-0.270185	0.208806	0.208806	-0.266833	-0.266833
-0.352278	-0.34	-0.34	-0.510392	-0.510392	-0.283196	-0.283196	-0.483735	-0.483735
-0.591354	-0.573847	-0.583095	-0.69	-0.69	-0.492443	-0.492443	-0.666108	-0.666108
-0.767919	-0.762168	-0.762168	-0.822192	-0.822192	-0.696419	-0.696419	-0.820366	-0.820366
-0.89822	-0.888876	-0.898443	-0.896772	-0.896772	-0.883912	-0.883912	-0.904268	-0.914112
-0.972934	-0.974166	-0.974166	-0.919239	-0.919239	-0.986154	-0.995389	-0.929624	-0.929624
-0.977446	-0.97719	-0.986712	-0.892693	-0.892693	-0.995389	-0.995389	-0.892693	-0.902441
-0.916788	-0.923472	-0.923472	-0.815843	-0.825651	-0.932309	-0.932309	-0.817435	-0.817435
-0.807775	-0.822192	-0.822192	-0.708308	-0.708308	-0.823468	-0.832586	-0.692604	-0.692604
-0.658027	-0.670671	-0.680074	-0.553624	-0.553624	-0.675352	-0.675352	-0.529245	-0.529245
-0.458803	-0.488467	-0.488467	-0.362491	-0.362491	-0.488262	-0.496488	-0.336006	-0.336006
-0.233238	-0.269258	-0.269258	-0.166433	-0.166433	-0.286007	-0.294109	0.181108	0.181108
0.098995	0.089443	0.089443	0.18868	0.197231	0.222036	0.222036	0.401622	0.401622
0.310644		0.401995			0.497293		0.663702	
0.521536		0.60075			0.848528		0.801561	
0.710211		0.724431			1.104762		0.861452	

Node No.		Node No.		Node No.		Node No.		Node No.	
2220	2227	2019	1685	2211					
Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	
1511272	534679.8	1507649	535931.3	1511082	532093.9	1516168	524025.2	1519778	
Velocity, fps		Velocity, fps		Velocity, fps		Velocity, fps		Velocity	
Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan	Existing	
0	0	-0.02	-0.02	0	0	0	0	0	0
0	0	-0.02	-0.02	0	0	0	0	0	0
-0.01	-0.01	-0.03	-0.03	-0.01	-0.01	-0.01	-0.01	0	-0.01
-0.04	-0.041231	-0.06	-0.060828	-0.04	-0.04	-0.022361	-0.022361	-0.02	
-0.110454	-0.110454	-0.130384	-0.130384	-0.11	-0.110454	-0.060828	-0.060828	-0.060828	
-0.230217	-0.230868	-0.240208	-0.240208	-0.220227	-0.220227	-0.110454	-0.110454	-0.114018	
-0.371214	-0.371214	-0.380132	-0.380526	-0.371214	-0.381182	-0.160312	-0.160312	-0.158114	
-0.536004	-0.536004	-0.562228	-0.562228	-0.562228	-0.563205	-0.21	-0.21	-0.202485	
-0.706116	-0.706116	-0.772787	-0.772787	-0.73437	-0.73437	-0.240208	-0.240208	-0.224722	
-0.846463	-0.846463	-0.955667	-0.955667	-0.855862	-0.855862	-0.261725	-0.261725	-0.224722	
-0.936803	-0.936803	-1.074477	-1.074477	-0.907965	-0.907965	-0.272947	-0.263059	-0.211896	
-0.971236	-0.971236	-1.140175	-1.140175	-0.910824	-0.910824	-0.264764	-0.264764	-0.199249	
-0.955092	-0.955092	-1.174436	-1.174436	-0.874757	-0.874757	-0.247386	-0.247386	-0.167631	
-0.907579	-0.907579	-1.148434	-1.148434	-0.808084	-0.808084	-0.221359	-0.221359	-0.133417	
-0.819329	-0.819329	-1.078564	-1.078564	-0.70342	-0.70342	-0.174642	-0.174642	-0.092195	
-0.700071	-0.700071	-0.961353	-0.961353	-0.570088	-0.570088	-0.116619	-0.116619	-0.05	
-0.536656	-0.536656	-0.804114	-0.804114	-0.4	-0.4	-0.05831	-0.05831	0.036056	
-0.35609	-0.35609	-0.612699	-0.612699	-0.294279	-0.294279	0.067082	0.067082	0.114018	
-0.21095	-0.21095	-0.403609	-0.403609	0.414005	0.414005	0.15	0.15	0.178045	
0.35	0.35	0.280179	0.280179	0.612944	0.612944	0.241868	0.241868	0.228035	
0.594643	0.594643	0.462277	0.462277	0.733485	0.733485	0.31257	0.31257	0.248395	
0.796241	0.796241	0.766942	0.776209	0.774919	0.774919	0.353553	0.353553	0.269072	
0.916624	0.916624	1.019215	1.019215	0.79555	0.805233	0.363456	0.363456	0.275862	
0.952575	0.952575	1.149348	1.159181	0.824621	0.824621	0.362215	0.362215	0.275862	
0.950474	0.950474	1.202664	1.202664	0.832406	0.832406	0.342345	0.342345	0.270185	
0.900056	0.900056	1.190378	1.190378	0.803243	0.803243	0.323883	0.323883	0.25	
0.820061	0.820061	1.101635	1.101635	0.73736	0.73736	0.296142	0.296142	0.224722	
0.690072	0.690072	0.950842	0.950842	0.633246	0.633246	0.247386	0.247386	0.178885	
0.520096	0.520096	0.750067	0.750067	0.492443	0.501597	0.193132	0.193132	0.133417	
0.320156	0.320156	0.520096	0.520096	0.344819	0.344819	0.122066	0.122066	-0.089443	
0.08	0.08	0.261725	0.261725	0.178045	0.178045	0.070711	0.070711	-0.114018	
-0.210238	-0.21095	-0.041231	-0.044721	-0.162788	-0.162788	-0.1	-0.1	-0.174642	
-0.494975	-0.494975	-0.263059	-0.263059	-0.422019	-0.422019	-0.164924	-0.164924	-0.219317	
-0.725672	-0.725672	-0.51788	-0.51788	-0.694622	-0.694622	-0.22	-0.22	-0.241868	
-0.865852	-0.865852	-0.798123	-0.798123	-0.87367	-0.87367	-0.251794	-0.251794	-0.238537	
-0.946414	-0.946414	-0.996243	-0.996243	-0.934345	-0.934345	-0.266833	-0.266833	-0.216333	
-0.94255	-0.94255	-1.049952	-1.049952	-0.896772	-0.896772	-0.275136	-0.275136	-0.186011	
-0.888651	-0.888651	-1.02489	-1.02489	-0.812158	-0.812158	-0.259422	-0.259422	-0.142127	
-0.772528	-0.772528	-0.945569	-0.945569	-0.669403	-0.669403	-0.236008	-0.236008	-0.084853	
-0.608358	-0.608358	-0.800562	-0.800562	-0.492443	-0.492443	-0.19105	-0.19105	0.022361	
-0.408044	-0.408044	-0.603738	-0.603738	-0.294109	-0.294109	-0.139284	-0.139284	0.092195	
-0.220907	-0.220907	-0.360694	-0.360694	0.319061	0.319061	0.117047	0.117047	0.174642	

0.399625	0.399625	0.252982	0.252982	0.550727	0.559464	0.156525	0.156525	0.228254
0.715681	0.715681	0.541295	0.541295	0.717844	0.717844	0.241868	0.241868	0.269258
0.958853	0.958853	0.941488	0.941488	0.798311	0.808084	0.31	0.31	0.294109
1.120714	1.120714	1.278828	1.278828	0.871321	0.871321	0.370135	0.370135	0.314006
1.210372	1.210372	1.48054	1.490537	0.95352	0.95352	0.410122	0.410122	0.326497
1.261428	1.261428	1.601531	1.601531	1.031601	1.031601	0.44	0.44	0.339706
1.270984	1.270984	1.631502	1.641493	1.069626	1.069626	0.46	0.46	0.339411
1.240161	1.240161	1.620123	1.620123	1.072007	1.072007	0.460109	0.460109	0.333017
1.170043	1.170043	1.550032	1.550032	1.023572	1.023572	0.440454	0.440454	0.306105
1.05019	1.060189	1.430315	1.430315	0.93145	0.941116	0.390512	0.390512	0.272029
0.890505	0.890505	1.240645	1.240645	0.810432	0.810432	0.310644	0.310644	0.21095
0.670671	0.670671	0.991262	0.991262	0.638905	0.638905	0.220907	0.220907	0.145602
0.410488	0.410488	0.672681	0.672681	0.417852	0.417852	0.10198	0.10198	-0.09434
0.072801	0.072801	0.320156	0.320156	0.176918	0.176918	-0.036056	-0.036056	-0.16
-0.342345	-0.342345	-0.114018	-0.114018	-0.250799	-0.250799	-0.160312	-0.160312	-0.252982
-0.751332	-0.761183	-0.465725	-0.465725	-0.677422	-0.677422	-0.27	-0.27	-0.308707
-1.067333	-1.067333	-0.90802	-0.917606	-1.044797	-1.044797	-0.351283	-0.351283	-0.33121
-1.251599	-1.251599	-1.290349	-1.290349	-1.224949	-1.224949	-0.393192	-0.394588	-0.317648
-1.329662	-1.329662	-1.456022	-1.456022	-1.247878	-1.257816	-0.407922	-0.407922	-0.28178
-1.3228	-1.3228	-1.51585	-1.51585	-1.221884	-1.221884	-0.414849	-0.414849	-0.250799
-1.272006	-1.272006	-1.535252	-1.535252	-1.154123	-1.154123	-0.404969	-0.404969	-0.211896
-1.189622	-1.189622	-1.496462	-1.498966	-1.057213	-1.057213	-0.366742	-0.366742	-0.167631
-1.059481	-1.069018	-1.387516	-1.387516	-0.921954	-0.921954	-0.305287	-0.305287	-0.121655
-0.888651	-0.888651	-1.237619	-1.237619	-0.736817	-0.736817	-0.220227	-0.220227	-0.060828
-0.694622	-0.694622	-1.037401	-1.037401	-0.526972	-0.53535	-0.1253	-0.1253	0.05099
-0.466476	-0.466476	-0.804114	-0.804114	-0.376431	-0.376431	0.084853	0.084853	0.127279
-0.259422	-0.259422	-0.543783	-0.552268	0.485489	0.485489	0.180278	0.180278	0.205183
0.311448	0.311448	-0.332415	-0.332415	0.706045	0.706045	0.290689	0.290689	0.254951
0.596154	0.596154	0.453431	0.453431	0.82365	0.82365	0.361248	0.371214	0.29
0.834326	0.834326	0.809506	0.809506	0.861626	0.861626	0.390512	0.4005	0.296985
0.971648	0.971648	1.088485	1.088485	0.888876	0.888876	0.390128	0.400125	0.311448
1.006032	1.006032	1.224827	1.224827	0.920489	0.920489	0.380132	0.380132	0.31241
1.003195	1.003195	1.275657	1.275657	0.926984	0.926984	0.360555	0.37054	0.3
0.951893	0.961873	1.26004	1.270039	0.887694	0.887694	0.341321	0.341321	0.280179
0.861452	0.871436	1.170684	1.170684	0.802309	0.806226	0.31257	0.31257	0.241868
0.731095	0.731095	1.0002	1.0002	0.67624	0.67624	0.264764	0.264764	0.196977
0.551453	0.551453	0.790063	0.790063	0.528015	0.528015	0.196469	0.196469	0.143178
0.341321	0.341321	0.550818	0.550818	0.367151	0.367151	0.12083	0.12083	-0.098489
0.104403	0.104403	0.284429	0.284429	0.198494	0.198494	0.05099	0.05099	-0.114018
-0.192354	-0.192354	0.060828	0.060828	-0.158114	-0.158114	-0.09434	-0.09434	-0.172627
-0.47676	-0.486621	-0.247386	-0.247386	-0.386005	-0.386005	-0.162788	-0.162788	-0.215407
-0.706116	-0.706116	-0.480521	-0.480521	-0.656201	-0.656201	-0.22	-0.22	-0.241868
-0.846463	-0.846463	-0.75	-0.75	-0.843801	-0.843801	-0.25318	-0.25318	-0.230217
-0.914822	-0.917606	-0.948683	-0.948683	-0.894539	-0.904489	-0.269258	-0.269258	-0.208087
-0.913947	-0.913947	-1.002447	-1.002447	-0.867006	-0.867006	-0.269258	-0.269258	-0.178045
-0.847585	-0.847585	-0.97719	-0.97719	-0.771038	-0.771038	-0.264197	-0.264197	-0.134536
-0.740945	-0.740945	-0.89493	-0.89493	-0.640312	-0.640312	-0.236008	-0.236008	-0.084853
-0.576975	-0.581378	-0.759605	-0.759605	-0.470106	-0.470106	-0.19105	-0.19105	0.031623
-0.384187	-0.384187	-0.56356	-0.56356	-0.274591	-0.274591	-0.139284	-0.139284	0.090554
0.22	0.22	-0.332415	-0.332415	0.316228	0.316228	0.117047	0.117047	0.17088
0.411825	0.411825	0.254951	0.254951	0.541202	0.541202	0.156525	0.156525	0.228254
0.713092	0.713092	0.551543	0.551543	0.689638	0.689638	0.231948	0.231948	0.269258

0.947629	0.947629	0.939415	0.939415	0.774661	0.774661	0.31	0.31	0.294109
1.090413	1.090413	1.247878	1.247878	0.85	0.85	0.360139	0.360139	0.306105
1.170385	1.170385	1.430315	1.440312	0.923959	0.923959	0.400125	0.400125	0.318904
1.201499	1.211487	1.531176	1.531176	0.980612	0.980612	0.420119	0.420119	0.318277
1.201041	1.201041	1.55158	1.55158	1.018676	1.018676	0.430116	0.430116	0.318277
1.160172	1.160172	1.520296	1.520296	1.001699	1.001699	0.430465	0.430465	0.312441
1.07	1.07	1.430035	1.430035	0.941116	0.941116	0.401123	0.401123	0.278029
0.940053	0.940053	1.290155	1.290155	0.839345	0.839345	0.341321	0.341321	0.238537
0.77026	0.77026	1.090413	1.090413	0.708802	0.708802	0.27074	0.27074	0.178885
0.54037	0.54037	0.820975	0.830963	0.524976	0.524976	0.171172	0.171172	0.110454
0.260768	0.260768	0.503587	0.503587	0.299666	0.299666	0.053852	0.053852	-0.102956
-0.100499	-0.100499	0.156525	0.156525	-0.111803	-0.111803	-0.082462	-0.082462	-0.192354
-0.503587	-0.503587	-0.234094	-0.234094	-0.412311	-0.412311	-0.20025	-0.20025	-0.269258
-0.866833	-0.866833	-0.608769	-0.618466	-0.816149	-0.826075	-0.290172	-0.290172	-0.31305
-1.12058	-1.12058	-1.046948	-1.046948	-1.103676	-1.103676	-0.352278	-0.352278	-0.317648
-1.263843	-1.263843	-1.341044	-1.341044	-1.21499	-1.21499	-0.384708	-0.384708	-0.295296
-1.300807	-1.300807	-1.450655	-1.450655	-1.219262	-1.219262	-0.40025	-0.40025	-0.264008
-1.272006	-1.272006	-1.484318	-1.484318	-1.162497	-1.162497	-0.398497	-0.401622	-0.228473
-1.211652	-1.211652	-1.486775	-1.486775	-1.085035	-1.085035	-0.380789	-0.380789	-0.189737
-1.11018	-1.11018	-1.40684	-1.41651	-0.968814	-0.968814	-0.34	-0.34	-0.145602
-0.961353	-0.961353	-1.288449	-1.288449	-0.817435	-0.817435	-0.272029	-0.272029	-0.090554
-0.772528	-0.772528	-1.107249	-1.107249	-0.61327	-0.61327	-0.176918	-0.176918	-0.036056
-0.559017	-0.559017	-0.888651	-0.888651	-0.418688	-0.418688	-0.090554	-0.090554	0.092195
-0.332415	-0.332415	-0.635059	-0.64405	0.392938	0.392938	0.117047	0.117047	0.176918
0.243516	0.243516	-0.396989	-0.396989	0.622415	0.622415	0.23	0.230217	0.240832
0.483735	0.492443	0.345398	0.345398	0.790759	0.790759	0.321403	0.321403	0.276586
0.752861	0.76243	0.660379	0.660379	0.85	0.85	0.371214	0.371214	0.29
0.935575	0.935575	0.991615	0.991615	0.872812	0.872812	0.390512	0.390512	0.304138
1.017104	1.017104	1.186802	1.196411	0.902497	0.902497	0.380132	0.380132	0.311448
1.023132	1.023132	1.282692	1.282692	0.923472	0.923472	0.360139	0.360139	0.298329
1.001249	1.001249	1.300154	1.310153	0.917606	0.917606	0.350571	0.350571	0.286007
0.940851	0.940851	1.251	1.251	0.85235	0.861626	0.331361	0.331361	0.266271
0.830542	0.830542	1.120714	1.120714	0.753923	0.753923	0.292746	0.292746	0.228254
0.680661	0.680661	0.940053	0.940053	0.627694	0.627694	0.235372	0.235372	0.174642
0.490408	0.490408	0.720278	0.720278	0.470106	0.470106	0.167631	0.167631	0.120416
0.280713	0.280713	0.471699	0.471699	0.313847	0.313847	0.086023	0.086023	-0.092195
0.028284	0.028284	0.21587	0.21587	0.147648	0.147648	-0.053852	-0.053852	-0.130384
-0.271662	-0.271662	-0.078102	-0.078102	-0.202485	-0.202485	-0.117047	-0.117047	-0.186815
-0.547449	-0.547449	-0.305941	-0.305941	-0.458912	-0.458912	-0.190263	-0.190263	-0.223607
-0.747329	-0.747329	-0.553173	-0.553173	-0.724431	-0.724431	-0.240832	-0.240832	-0.246982
-0.878009	-0.878009	-0.825651	-0.825651	-0.883629	-0.883629	-0.274591	-0.274591	-0.230217
-0.936803	-0.936803	-0.989798	-0.989798	-0.91444	-0.91444	-0.281603	-0.281603	-0.208087
-0.913947	-0.923472	-1.008811	-1.018332	-0.857088	-0.857088	-0.282312	-0.282312	-0.170294
-0.838153	-0.838153	-0.964624	-0.964624	-0.762955	-0.762955	-0.269258	-0.269258	-0.128062
-0.722357	-0.722357	-0.875957	-0.875957	-0.614003	-0.614003	-0.242074	-0.242074	-0.070711
-0.550091	-0.550091	-0.731642	-0.731642	-0.429418	-0.429418	-0.192094	-0.198494	0.028284
-0.347131	-0.347131	-0.523546	-0.523546	-0.26	-0.26	-0.136015	-0.136015	0.104403
0.22561	0.22561	-0.3	-0.3	0.361248	0.361248	0.111803	0.111803	0.187883
0.451774	0.451774	0.274591	0.274591	0.567979	0.567979	0.161555	0.161555	0.233238
0.722772	0.722772	0.570088	0.570088	0.70214	0.70214	0.230868	0.230868	0.266271
0.93771	0.93771	0.929624	0.939415	0.766877	0.766877	0.300167	0.300167	0.286007
1.060754	1.060754	1.218072	1.218072	0.820366	0.820366	0.350571	0.350571	0.298329

1.120402	1.120402	1.370584	1.38058	0.88459	0.88459	0.37054	0.380526	0.311448
1.141578	1.141578	1.441249	1.441249	0.929624	0.931719	0.390512	0.390512	0.311127
1.121116	1.121116	1.4417	1.451689	0.936216	0.936216	0.390512	0.390512	0.297321
1.060424	1.060424	1.390575	1.390575	0.90956	0.90956	0.381182	0.381182	0.284253
0.950053	0.960052	1.280039	1.280039	0.839345	0.839345	0.351283	0.351283	0.244131
0.81	0.81	1.120045	1.120045	0.728011	0.728011	0.291548	0.291548	0.197231
0.620081	0.620081	0.900222	0.900222	0.575674	0.575674	0.212132	0.212132	0.136015
0.390128	0.390128	0.631269	0.630714	0.395601	0.395601	0.114018	0.114018	-0.089443
0.1	0.1	0.323883	0.323883	0.178045	0.178045	0.03	0.03	-0.130384
-0.260768	-0.260768	-0.063246	-0.063246	-0.192354	-0.192354	-0.123693	-0.123693	-0.218403
-0.636396	-0.636396	-0.359026	-0.368782	-0.557315	-0.567186	-0.230217	-0.230217	-0.286356
-0.941488	-0.941488	-0.742159	-0.751864	-0.91444	-0.91444	-0.310644	-0.310644	-0.308869
-1.135077	-1.135077	-1.129292	-1.129292	-1.12361	-1.12361	-0.353553	-0.353553	-0.300167
-1.225275	-1.234909	-1.335215	-1.335215	-1.176138	-1.176138	-0.37855	-0.37855	-0.272947
-1.240403	-1.240403	-1.397176	-1.40684	-1.149826	-1.149826	-0.386005	-0.386005	-0.241661
-1.189622	-1.199208	-1.423692	-1.423692	-1.093298	-1.093298	-0.382753	-0.382753	-0.206155
-1.119732	-1.119732	-1.384955	-1.384955	-0.98656	-0.98656	-0.353412	-0.353412	-0.158114
-0.989798	-0.9993	-1.285768	-1.285768	-0.853756	-0.853756	-0.305287	-0.305287	-0.114018
-0.832166	-0.832166	-1.136002	-1.136002	-0.680074	-0.680074	-0.226716	-0.226716	-0.05099
-0.626498	-0.626498	-0.939202	-0.948683	-0.472017	-0.472017	-0.138924	-0.138924	0.05831
-0.410488	-0.410488	-0.707743	-0.716938	-0.353553	-0.353553	0.080623	0.080623	0.134536
-0.233452	-0.233452	-0.464004	-0.464004	0.506063	0.506063	0.162788	0.162788	0.212603
0.370135	0.370135	-0.300666	-0.300666	0.724224	0.724224	0.260192	0.260192	0.262488
0.65192	0.661287	0.50448	0.50448	0.822982	0.822982	0.331361	0.331361	0.283196
0.880738	0.880738	0.86406	0.86406	0.850941	0.850941	0.371214	0.371214	0.304138
0.998499	0.998499	1.12272	1.132254	0.870919	0.870919	0.37054	0.37054	0.304138
1.033102	1.033102	1.26115	1.270984	0.899889	0.899889	0.360139	0.360139	0.297321
1.030776	1.030776	1.321363	1.321363	0.913947	0.913947	0.350571	0.350143	0.298329
0.990202	0.990202	1.310954	1.310954	0.882553	0.891964	0.331361	0.330606	0.272029
0.91022	0.91022	1.211487	1.211487	0.809938	0.809938	0.31257	0.31257	0.246982
0.780064	0.790063	1.060424	1.060424	0.705762	0.705762	0.263059	0.263059	0.205913
0.620081	0.620081	0.87	0.87	0.56648	0.575847	0.206155	0.206155	0.148661
0.430116	0.430116	0.640312	0.640312	0.416293	0.416293	0.139284	0.139284	-0.100499
0.210238	0.210238	0.391152	0.391152	0.246982	0.246982	0.064031	0.064031	-0.089443
-0.06	-0.06	0.126491	0.126491	#DIV/0!	0.1	-0.064031	-0.064031	-0.151327
-0.351283	-0.361248	-0.139284	-0.139284	-0.265707	-0.265707	-0.141421	-0.141421	-0.206155
-0.61	-0.61	-0.366742	-0.366742	-0.545894	-0.545894	-0.21	-0.21	-0.241868
-0.790759	-0.790759	-0.628172	-0.628172	-0.784092	-0.784092	-0.251794	-0.251794	-0.238537
-0.899889	-0.899889	-0.882326	-0.882326	-0.903549	-0.903549	-0.288617	-0.288617	-0.230217
-0.939628	-0.939628	-1.008811	-1.008811	-0.905539	-0.905539	-0.297321	-0.297321	-0.2
-0.904434	-0.904434	-1.005783	-1.005783	-0.848528	-0.848528	-0.290689	-0.290689	-0.164012
-0.819329	-0.819329	-0.952103	-0.952103	-0.733485	-0.733485	-0.274591	-0.274591	-0.114018
-0.690797	-0.690797	-0.844334	-0.844334	-0.585235	-0.585235	-0.242074	-0.242074	-0.056569
-0.523546	-0.523546	-0.690797	-0.690797	-0.399625	-0.399625	-0.192094	-0.192094	0.04
-0.325269	-0.325269	-0.483735	-0.492443	-0.254951	-0.254951	-0.136015	-0.136015	0.117047
0.230868	0.230868	-0.280179	-0.280179	0.381838	0.381838	0.111803	0.111803	0.192354
0.451774	0.451774	0.266271	0.266271	0.581378	0.581378	0.152315	0.152315	0.238537
0.706045	0.706045	0.551543	0.551543	0.705195	0.705195	0.220227	0.230217	0.272029
0.899444	0.899444	0.890505	0.892693	0.747329	0.747329	0.290689	0.290689	0.284253
1.011237	1.011237	1.149826	1.151173	0.780897	0.780897	0.331361	0.331361	0.290689
1.050048	1.050048	1.281405	1.281405	0.823772	0.823772	0.351283	0.351283	0.29
1.05119	1.05119	1.33094	1.33094	0.849294	0.849294	0.351283	0.361248	0.29

1.011237	1.011237	1.31244	1.31244	0.844038	0.844038	0.351283	0.351283	0.276586
0.93086	0.93086	1.231463	1.231463	0.805233	0.805233	0.332415	0.332415	0.25
0.820549	0.820549	1.110405	1.110405	0.715681	0.715681	0.292746	0.292746	0.21095
0.660303	0.660303	0.930054	0.930054	0.594811	0.604401	0.233452	0.233452	0.152315
0.460109	0.460109	0.700071	0.700071	0.442719	0.442719	0.155242	0.155242	0.1
0.230217	0.230217	0.440454	0.441022	0.264008	0.264008	0.064031	0.064031	-0.089443
-0.070711	-0.070711	0.145602	0.145602	0.09	0.09	-0.072111	-0.072111	-0.161245
-0.411096	-0.411096	-0.1772	-0.1772	-0.329848	-0.329848	-0.162788	-0.162788	-0.234094
-0.729932	-0.729932	-0.47676	-0.47676	-0.68469	-0.68469	-0.25	-0.25	-0.28178
-0.972934	-0.972934	-0.846463	-0.846463	-0.963328	-0.963328	-0.311448	-0.311448	-0.291548
-1.115706	-1.115706	-1.151347	-1.160905	-1.093709	-1.093709	-0.345254	-0.345254	-0.269258
-1.164818	-1.164818	-1.278828	-1.278828	-1.106526	-1.106526	-0.361386	-0.361386	-0.241868
-1.148434	-1.148434	-1.312174	-1.312174	-1.06066	-1.06066	-0.360555	-0.360555	-0.210238
-1.088118	-1.088118	-1.302498	-1.312174	-0.984784	-0.984784	-0.349285	-0.349285	-0.174642
-0.989798	-0.989798	-1.244548	-1.244548	-0.870976	-0.870976	-0.317648	-0.317648	-0.126491
-0.850941	-0.850941	-1.12641	-1.12641	-0.711688	-0.721249	-0.25807	-0.25807	-0.070711
-0.67624	-0.67624	-0.958175	-0.958175	-0.532353	-0.532353	-0.183848	-0.183848	0.02
-0.475079	-0.475079	-0.750267	-0.750267	-0.358469	-0.358469	-0.10198	-0.10198	0.106301
-0.269258	-0.269258	-0.519711	-0.519711	0.398121	0.398121	0.108167	0.108167	0.178045
0.286007	0.286007	-0.304138	-0.31305	0.626259	0.626259	0.190263	0.190263	0.234307
0.550364	0.550364	0.370135	0.376431	0.778974	0.778974	0.280713	0.280713	0.270185
0.79555	0.79555	0.711126	0.711126	0.833847	0.833847	0.331361	0.341321	0.283196
0.961769	0.961769	1.030922	1.030922	0.842021	0.842021	0.361248	0.361248	0.296985
1.023963	1.023963	1.218072	1.218072	0.863481	0.863481	0.350571	0.350571	0.296985
1.040769	1.040769	1.304646	1.304646	0.890225	0.890225	0.340588	0.340588	0.297321
1.020049	1.020049	1.320341	1.330338	0.891852	0.891852	0.330606	0.330606	0.284253
0.96	0.96	1.261943	1.261943	0.844334	0.844334	0.321403	0.321403	0.25807
0.86	0.86	1.151086	1.151086	0.762168	0.762168	0.292746	0.292746	0.224722
0.73	0.73	0.990202	0.990202	0.654599	0.654599	0.243311	0.243311	0.178885
0.56	0.56	0.79	0.79	0.518652	0.518652	0.184391	0.184391	0.123693
0.36	0.36	0.570088	0.570088	0.358469	0.358469	0.107703	0.107703	-0.08544
0.140357	0.140357	0.311448	0.311448	0.194165	0.194165	0.041231	0.041231	-0.10198
-0.14	-0.14	0.064031	0.064031	-0.108167	-0.108167	-0.08544	-0.08544	-0.164924
-0.4219	-0.431856	-0.194165	-0.203961	-0.339559	-0.339559	-0.170294	-0.170294	-0.223607
-0.660984	-0.660984	-0.425793	-0.425793	-0.614003	-0.614003	-0.230868	-0.230868	-0.246982
-0.822253	-0.831986	-0.693758	-0.693758	-0.822982	-0.822982	-0.274591	-0.274591	-0.244131
-0.921792	-0.921792	-0.926553	-0.926553	-0.91351	-0.91351	-0.291204	-0.291204	-0.222036
-0.939628	-0.939628	-1.018332	-1.018332	-0.8956	-0.8956	-0.300832	-0.300832	-0.2
-0.89493	-0.89493	-0.990404	-1.002846	-0.828734	-0.828734	-0.290689	-0.290689	-0.156205
-0.79712	-0.79712	-0.930054	-0.930054	-0.706116	-0.706116	-0.274591	-0.274591	-0.106301
-0.663099	-0.663099	-0.822192	-0.822192	-0.559732	-0.559732	-0.234307	-0.234307	-0.042426
-0.492443	-0.492443	-0.668506	-0.668506	-0.380132	-0.380132	-0.178045	-0.184391	0.041231
-0.311448	-0.311448	-0.475079	-0.475079	-0.261725	-0.260768	-0.123693	-0.123693	0.12083
0.234094	0.234094	-0.272029	-0.280179	0.39598	0.39598	0.102956	0.102956	0.18868
0.434166	0.434166	0.255539	0.255539	0.581378	0.581378	0.148661	0.148661	0.230217
0.667608		0.505668		0.689493		0.210238		0.264008
0.841724		0.814923		0.722772		0.271662		0.276586
0.932631		1.043935		0.733485		0.302655		0.275862

	Node No.		Node No.		Node No.		Node No.		
	2428		2205		1675		1668		
	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing
	532527.6	1521181	534739.7	1522508	532352.1	1522391	523423.5	1524600	523242.8
<i>v</i> , fps									
Velocity, fps									
Plan		Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.01	0.01	0	0
-0.02	-0.022361	-0.022361	-0.02	-0.02	-0.031623	-0.031623	-0.02	-0.02	-0.02
-0.060828	-0.053852	-0.053852	-0.05099	-0.05099	-0.070711	-0.070711	-0.04	-0.04	-0.04
-0.114018	-0.111803	-0.107703	-0.092195	-0.092195	-0.090554	-0.100499	-0.08	-0.08	-0.08
-0.158114	-0.156525	-0.156525	-0.133417	-0.133417	-0.100499	-0.100499	-0.12	-0.12	-0.12
-0.202485	-0.192354	-0.192354	-0.164924	-0.164924	-0.100499	-0.100499	-0.15	-0.15	-0.15
-0.224722	-0.210238	-0.210238	-0.184391	-0.184391	-0.100499	-0.100499	-0.18	-0.18	-0.18
-0.224722	-0.210238	-0.210238	-0.194165	-0.194165	-0.100499	-0.100499	-0.20025	-0.20025	-0.20025
-0.211896	-0.206155	-0.206155	-0.194165	-0.194165	-0.100499	-0.100499	-0.20025	-0.20025	-0.20025
-0.199249	-0.180278	-0.180278	-0.174642	-0.174642	0.09	0.09	-0.20025	-0.20025	-0.20025
-0.167631	-0.158114	-0.158114	-0.152971	-0.152971	0.06	0.06	-0.18	-0.18	-0.18
-0.133417	-0.123693	-0.123693	-0.121655	-0.121655	0.03	0.03	-0.16	-0.16	-0.16
-0.10198	-0.092195	-0.092195	-0.092195	-0.092195	0.01	0.01	-0.13	-0.13	-0.13
-0.05	-0.041231	-0.041231	-0.05099	-0.05099	0.041231	0.041231	-0.09	-0.09	-0.09
0.036056	0.044721	0.044721	0.01	0.01	0.070711	0.070711	-0.04	-0.04	-0.04
0.114018	0.098995	0.098995	0.063246	0.063246	0.090554	0.090554	0.01	0.01	0.01
0.178045	0.156205	0.156205	0.126491	0.126491	0.10198	0.10198	0.060828	0.060828	0.060828
0.228035	0.198494	0.198494	0.1772	0.1772	0.10198	0.10198	0.100499	0.100499	0.100499
0.248395	0.226716	0.226716	0.218403	0.218403	0.092195	0.092195	0.141421	0.141421	0.141421
0.269072	0.247588	0.247588	0.237697	0.237697	0.082462	0.082462	0.162788	0.162788	0.162788
0.275862	0.254558	0.254558	0.247386	0.247386	0.063246	0.063246	0.174642	0.174642	0.174642
0.275862	0.254558	0.254558	0.25	0.25	0.044721	0.044721	0.174642	0.174642	0.174642
0.270185	0.240416	0.240416	0.230868	0.230868	0.022361	0.022361	0.174642	0.174642	0.174642
0.25	0.212603	0.212603	0.208806	0.208806	0.01	0.01	0.155242	0.155242	0.155242
0.224722	0.178045	0.178045	0.180278	0.180278	0.04	0.04	0.136015	0.136015	0.136015
0.178885	0.130384	0.130384	0.13	0.13	0.07	0.07	0.107703	0.107703	0.107703
0.133417	0.072801	0.072801	0.076158	0.076158	-0.090554	-0.090554	0.067082	0.067082	0.067082
-0.089443	-0.044721	-0.044721	0.022361	0.022361	0.1	0.1	0.031623	0.031623	0.031623
-0.114018	-0.104403	-0.104403	-0.060828	-0.060828	0.1	0.1	-0.036056	-0.036056	-0.036056
-0.174642	-0.17	-0.17	-0.123693	-0.123693	-0.090554	-0.090554	-0.080623	-0.080623	-0.080623
-0.219317	-0.202485	-0.202485	-0.167631	-0.167631	-0.090554	-0.090554	-0.130384	-0.130384	-0.130384
-0.241868	-0.21095	-0.21095	-0.189737	-0.189737	-0.080623	-0.080623	-0.17	-0.17	-0.17
-0.238537	-0.202485	-0.202485	-0.189737	-0.189737	0.06	0.06	-0.190263	-0.190263	-0.190263
-0.216333	-0.174929	-0.174929	-0.180278	-0.180278	0.04	0.04	-0.200998	-0.200998	-0.200998
-0.186011	-0.152643	-0.152643	-0.158114	-0.158114	0.02	0.02	-0.202237	-0.202237	-0.202237
-0.142127	-0.108167	-0.108167	-0.126491	-0.126491	0.022361	0.022361	-0.192354	-0.192354	-0.192354
-0.084853	-0.05	-0.05	-0.076158	-0.076158	0.060828	0.060828	-0.152971	-0.152971	-0.152971
0.022361	0.022361	0.022361	-0.028284	-0.028284	0.080623	0.080623	-0.104403	-0.104403	-0.114018
0.092195	0.09434	0.09434	0.04	0.04	0.100499	0.100499	-0.044721	-0.044721	-0.044721
0.174642	0.166433	0.166433	0.121655	0.121655	0.111803	0.111803	0.022361	0.022361	0.022361

0.228254	0.224722	0.224722	0.194165	0.194165	0.121655	0.121655	0.08	0.09
0.269258	0.272029	0.272029	0.245153	0.245153	0.123693	0.123693	0.140357	0.140357
0.294109	0.292062	0.292062	0.286356	0.286356	0.111803	0.111803	0.182483	0.182483
0.314006	0.31241	0.31241	0.308058	0.308058	0.092195	0.092195	0.203961	0.203961
0.326497	0.326497	0.326497	0.317805	0.317805	0.070711	0.070711	0.223607	0.223607
0.339706	0.333017	0.333017	0.329848	0.329848	0.05099	0.05099	0.233452	0.233452
0.339411	0.325576	0.325576	0.320156	0.320156	0.031623	0.031623	0.223607	0.223607
0.333017	0.311448	0.311448	0.300832	0.300832	0.01	0.01	0.212132	0.212132
0.306105	0.282843	0.282843	0.272029	0.272029	-0.041231	-0.041231	0.181108	0.181108
0.272029	0.233452	0.233452	0.230868	0.230868	-0.070711	-0.070711	0.140357	0.140357
0.21095	0.178045	0.178045	0.1772	0.1772	-0.100499	-0.100499	0.1	0.1
0.145602	0.102956	0.102956	0.107703	0.107703	-0.120416	-0.120416	0.04	0.04
-0.09434	-0.044721	-0.044721	0.014142	0.014142	-0.130384	-0.130384	-0.031623	-0.031623
-0.16	-0.148661	-0.148661	-0.092195	-0.092195	-0.140357	-0.140357	-0.100499	-0.100499
-0.252982	-0.241868	-0.241868	-0.1772	-0.1772	-0.140357	-0.140357	-0.17	-0.17
-0.308707	-0.291548	-0.291548	-0.240416	-0.240416	-0.140357	-0.140357	-0.23	-0.23
-0.33121	-0.300167	-0.300167	-0.262488	-0.272029	-0.120416	-0.120416	-0.28	-0.28
-0.317648	-0.28178	-0.28178	-0.272029	-0.272029	-0.110454	-0.110454	-0.3	-0.3
-0.28178	-0.254951	-0.254951	-0.25	-0.25	-0.090554	-0.100499	-0.310161	-0.310161
-0.250799	-0.219317	-0.219317	-0.228035	-0.228035	0.08	0.08	-0.300666	-0.300666
-0.211896	-0.183848	-0.180278	-0.184391	-0.184391	0.06	0.06	-0.27074	-0.280713
-0.167631	-0.145602	-0.145602	-0.152971	-0.152971	0.04	0.04	-0.241868	-0.241868
-0.121655	-0.10198	-0.10198	-0.111803	-0.111803	0.01	0.01	-0.200998	-0.200998
-0.060828	-0.041231	-0.041231	-0.05099	-0.05099	0.05099	0.05099	-0.141421	-0.141421
0.05099	0.044721	0.044721	0.014142	0.014142	0.080623	0.080623	-0.080623	-0.080623
0.127279	0.120416	0.120416	0.076158	0.076158	0.090554	0.090554	-0.01	-0.01
0.205183	0.184391	0.184391	0.148661	0.148661	0.10198	0.10198	0.063246	0.063246
0.254951	0.226716	0.226716	0.208806	0.208806	0.10198	0.10198	0.126491	0.126491
0.29	0.254951	0.254951	0.25	0.25	0.092195	0.092195	0.167631	0.167631
0.304138	0.275862	0.275862	0.269258	0.269258	0.082462	0.082462	0.199249	0.199249
0.311448	0.275862	0.275862	0.269258	0.269258	0.063246	0.063246	0.208806	0.208806
0.31241	0.268701	0.268701	0.262488	0.262488	0.031623	0.041231	0.208806	0.208806
0.3	0.254558	0.254558	0.25	0.25	0.014142	0.014142	0.199249	0.199249
0.280179	0.233452	0.233452	0.221359	0.221359	0.02	0.02	0.1772	0.1772
0.241868	0.192094	0.192094	0.189737	0.189737	0.05	0.05	0.148661	0.148661
0.196977	0.144222	0.144222	0.139284	0.139284	-0.080623	-0.080623	0.107703	0.107703
0.143178	0.08544	0.08544	0.080623	0.080623	-0.100499	-0.100499	0.072111	0.072111
-0.098489	-0.05	-0.05	0.022361	0.022361	0.1	0.1	0.036056	0.036056
-0.114018	-0.104403	-0.104403	-0.060828	-0.060828	0.09	0.09	-0.036056	-0.036056
-0.172627	-0.17	-0.17	-0.123693	-0.123693	-0.090554	-0.090554	-0.082462	-0.082462
-0.215407	-0.197231	-0.197231	-0.167631	-0.167631	-0.090554	-0.090554	-0.120416	-0.130384
-0.241868	-0.21095	-0.21095	-0.189737	-0.189737	-0.080623	-0.080623	-0.16	-0.16
-0.230217	-0.202485	-0.202485	-0.189737	-0.189737	0.06	0.06	-0.180278	-0.180278
-0.208087	-0.174929	-0.174929	-0.180278	-0.180278	0.03	0.03	-0.19105	-0.19105
-0.178045	-0.144222	-0.144222	-0.148661	-0.148661	0	0	-0.192354	-0.192354
-0.134536	-0.1	-0.1	-0.117047	-0.117047	0.031623	0.031623	-0.182483	-0.182483
-0.084853	-0.042426	-0.042426	-0.076158	-0.076158	0.060828	0.060828	-0.152971	-0.152971
0.031623	0.02	0.02	-0.028284	-0.028284	0.080623	0.080623	-0.104403	-0.104403
0.090554	0.098489	0.098489	0.05	0.05	0.100499	0.100499	-0.044721	-0.044721
0.17088	0.166433	0.166433	0.121655	0.121655	0.121655	0.121655	0.031623	0.031623
0.228254	0.216333	0.216333	0.194165	0.194165	0.121655	0.121655	0.09	0.09
0.269258	0.264008	0.264008	0.245153	0.245153	0.111803	0.111803	0.140357	0.140357

0.294109	0.292062	0.292062	0.286356	0.286356	0.10198	0.10198	0.182483	0.182483
0.306105	0.31241	0.31241	0.298329	0.308058	0.082462	0.082462	0.203961	0.203961
0.318904	0.318904	0.318904	0.308058	0.308058	0.060828	0.060828	0.213776	0.213776
0.318277	0.318904	0.318904	0.310483	0.310483	0.041231	0.041231	0.223607	0.223607
0.318277	0.311448	0.311448	0.300832	0.300832	0.02	0.02	0.213776	0.213776
0.31241	0.29	0.29	0.281603	0.281603	0.02	0.02	0.192354	0.192354
0.278029	0.254558	0.254558	0.240416	0.25	-0.05099	-0.05099	0.162788	0.162788
0.238537	0.205183	0.205183	0.199249	0.199249	-0.080623	-0.080623	0.121655	0.121655
0.178885	0.136015	0.136015	0.139284	0.148661	-0.100499	-0.100499	0.080623	0.080623
0.110454	0.060828	0.060828	0.067082	0.067082	-0.120416	-0.120416	0.02	0.02
-0.102956	-0.080623	-0.080623	-0.03	-0.03	-0.140357	-0.140357	-0.05	-0.05
-0.192354	-0.187883	-0.187883	-0.123693	-0.123693	-0.140357	-0.140357	-0.12	-0.12
-0.269258	-0.255539	-0.255539	-0.199249	-0.199249	-0.140357	-0.140357	-0.19	-0.19
-0.317648	-0.291548	-0.291548	-0.25	-0.25	-0.120416	-0.120416	-0.24	-0.24
-0.317648	-0.286531	-0.286531	-0.262488	-0.262488	-0.110454	-0.110454	-0.28	-0.28
-0.295296	-0.259422	-0.259422	-0.259615	-0.259615	-0.100499	-0.100499	-0.290172	-0.290172
-0.264008	-0.232594	-0.232594	-0.237697	-0.237697	-0.090554	-0.090554	-0.300666	-0.300666
-0.228473	-0.206155	-0.206155	-0.206155	-0.206155	0.07	0.07	-0.280713	-0.280713
-0.189737	-0.161555	-0.161555	-0.164924	-0.164924	0.05	0.05	-0.261725	-0.261725
-0.145602	-0.114018	-0.114018	-0.133417	-0.133417	0.02	0.02	-0.222036	-0.222036
-0.090554	-0.070711	-0.070711	-0.082462	-0.082462	0.022361	0.022361	-0.171172	-0.171172
-0.036056	-0.031623	-0.031623	-0.02	-0.02	0.060828	0.060828	-0.111803	-0.111803
0.092195	0.084853	0.084853	0.044721	0.044721	0.090554	0.090554	-0.04	-0.04
0.176918	0.156205	0.156205	0.117047	0.117047	0.10198	0.10198	0.031623	0.031623
0.240832	0.212603	0.212603	0.189737	0.189737	0.10198	0.10198	0.094868	0.094868
0.276586	0.240832	0.240832	0.228035	0.228035	0.10198	0.10198	0.145602	0.145602
0.29	0.269072	0.269072	0.259615	0.259615	0.092195	0.092195	0.1772	0.1772
0.304138	0.275862	0.275862	0.269258	0.269258	0.072801	0.072801	0.199249	0.199249
0.311448	0.275862	0.275862	0.269258	0.269258	0.053852	0.053852	0.208806	0.208806
0.298329	0.268701	0.268701	0.259615	0.259615	0.031623	0.031623	0.199249	0.199249
0.286007	0.247588	0.247588	0.240416	0.240416	0.01	0.01	0.186815	0.186815
0.266271	0.219317	0.219317	0.211896	0.211896	0.03	0.03	0.167631	0.167631
0.228254	0.178045	0.178045	0.17088	0.17088	0.06	0.06	0.126491	0.126491
0.174642	0.116619	0.116619	0.12083	0.12083	-0.080623	-0.080623	0.098489	0.098489
0.120416	0.060828	0.060828	0.067082	0.067082	-0.090554	-0.090554	0.05831	0.05831
-0.092195	-0.05099	-0.05099	-0.014142	-0.014142	0.1	0.1	0.02	0.02
-0.130384	-0.13	-0.13	-0.082462	-0.082462	-0.090554	-0.090554	-0.053852	-0.053852
-0.186815	-0.183576	-0.183576	-0.136015	-0.136015	-0.090554	-0.090554	-0.100499	-0.100499
-0.223607	-0.21095	-0.21095	-0.1772	-0.1772	-0.080623	-0.080623	-0.14	-0.14
-0.246982	-0.21095	-0.21095	-0.189737	-0.189737	-0.070711	-0.070711	-0.17	-0.17
-0.230217	-0.202485	-0.202485	-0.189737	-0.189737	0.05	0.05	-0.20025	-0.20025
-0.208087	-0.166433	-0.166433	-0.180278	-0.180278	0.03	0.03	-0.200998	-0.200998
-0.170294	-0.130384	-0.130384	-0.148661	-0.148661	0.014142	0.014142	-0.202237	-0.202237
-0.128062	-0.086023	-0.086023	-0.107703	-0.107703	0.031623	0.031623	-0.182483	-0.182483
-0.070711	-0.036056	-0.036056	-0.067082	-0.067082	0.060828	0.060828	-0.143178	-0.143178
0.028284	0.031623	0.041231	-0.014142	-0.014142	0.080623	0.080623	-0.094868	-0.094868
0.104403	0.111803	0.111803	0.060828	0.060828	0.10198	0.10198	-0.036056	-0.036056
0.187883	0.174929	0.174929	0.133417	0.133417	0.111803	0.111803	0.041231	0.041231
0.233238	0.222036	0.222036	0.194165	0.194165	0.111803	0.111803	0.090554	0.090554
0.266271	0.264008	0.264008	0.245153	0.245153	0.10198	0.10198	0.141421	0.141421
0.286007	0.284253	0.284253	0.276586	0.276586	0.092195	0.092195	0.172627	0.172627
0.298329	0.298329	0.298329	0.288617	0.288617	0.082462	0.082462	0.203961	0.203961

0.311448	0.297321	0.297321	0.298329	0.298329	0.060828	0.060828	0.21587	0.21587
0.311127	0.297321	0.297321	0.288617	0.288617	0.031623	0.031623	0.21587	0.21587
0.297321	0.275862	0.275862	0.269258	0.272029	0.01	0.01	0.203961	0.203961
0.284253	0.254558	0.254558	0.25	0.25	0.03	0.03	0.184391	0.184391
0.244131	0.219317	0.219317	0.208806	0.208806	-0.060828	-0.060828	0.143178	0.143178
0.197231	0.156205	0.156205	0.158114	0.158114	-0.080623	-0.080623	0.10198	0.10198
0.136015	0.089443	0.089443	0.094868	0.094868	-0.100499	-0.100499	0.05099	0.05099
-0.089443	-0.042426	-0.042426	0.022361	0.022361	-0.110454	-0.110454	0.01	0.01
-0.130384	-0.126491	-0.126491	-0.070711	-0.070711	-0.130384	-0.130384	-0.070711	-0.070711
-0.218403	-0.205913	-0.205913	-0.155242	-0.155242	-0.130384	-0.130384	-0.13	-0.13
-0.286356	-0.260768	-0.260768	-0.218403	-0.218403	-0.130384	-0.130384	-0.19	-0.19
-0.308869	-0.277849	-0.277849	-0.240416	-0.240416	-0.110454	-0.110454	-0.24	-0.24
-0.300167	-0.264197	-0.264197	-0.25	-0.25	-0.100499	-0.100499	-0.270185	-0.270185
-0.272947	-0.237065	-0.237065	-0.240416	-0.240416	-0.080623	-0.080623	-0.280179	-0.280179
-0.241661	-0.210238	-0.210238	-0.218403	-0.218403	0.07	0.07	-0.280713	-0.280713
-0.206155	-0.174642	-0.174642	-0.186815	-0.186815	0.06	0.06	-0.260768	-0.260768
-0.158114	-0.136015	-0.136015	-0.143178	-0.145602	0.03	0.03	-0.231948	-0.231948
-0.114018	-0.082462	-0.082462	-0.10198	-0.10198	0.014142	0.014142	-0.192354	-0.192354
-0.05099	-0.031623	-0.031623	-0.05099	-0.05099	0.05099	0.05099	-0.131529	-0.131529
0.05831	0.05831	0.05831	0.014142	0.014142	0.080623	0.080623	-0.070711	-0.070711
0.134536	0.128062	0.134536	0.08544	0.08544	0.100499	0.100499	0	0
0.212603	0.184391	0.184391	0.158114	0.158114	0.10198	0.10198	0.063246	0.063246
0.262488	0.226716	0.226716	0.208806	0.208806	0.10198	0.10198	0.123693	0.123693
0.283196	0.254951	0.254951	0.25	0.25	0.092195	0.092195	0.155242	0.164924
0.304138	0.275862	0.275862	0.269258	0.269258	0.082462	0.082462	0.186815	0.186815
0.304138	0.275862	0.275862	0.269258	0.269258	0.072801	0.072801	0.199249	0.199249
0.297321	0.275862	0.275862	0.269258	0.269258	0.053852	0.053852	0.199249	0.199249
0.298329	0.268701	0.268701	0.25	0.259615	0.022361	0.022361	0.196469	0.196469
0.272029	0.233452	0.233452	0.230868	0.230868	0.01	0.01	0.1772	0.1772
0.246982	0.198494	0.198494	0.199249	0.199249	0.04	0.04	0.145602	0.145602
0.205913	0.164012	0.164012	0.158114	0.158114	-0.070711	-0.070711	0.117047	0.117047
0.148661	0.102956	0.102956	0.107703	0.107703	-0.090554	-0.090554	0.076158	0.076158
-0.100499	-0.041231	-0.041231	0.044721	0.044721	-0.100499	-0.100499	0.042426	0.036056
-0.089443	-0.080623	-0.080623	-0.03	-0.03	-0.100499	-0.100499	-0.028284	-0.028284
-0.151327	-0.147648	-0.147648	-0.094868	-0.094868	-0.090554	-0.090554	-0.070711	-0.070711
-0.206155	-0.18868	-0.18868	-0.148661	-0.148661	-0.080623	-0.080623	-0.120416	-0.12
-0.241868	-0.216333	-0.216333	-0.180278	-0.180278	-0.080623	-0.080623	-0.080623	-0.16
-0.238537	-0.202485	-0.202485	-0.189737	-0.189737	0.07	0.07	-0.190263	-0.190263
-0.230217	-0.18868	-0.18868	-0.189737	-0.189737	0.05	0.05	-0.200998	-0.200998
-0.2	-0.158114	-0.158114	-0.17088	-0.17088	0.03	0.03	-0.212132	-0.212132
-0.164012	-0.122066	-0.122066	-0.139284	-0.139284	0	0	-0.202237	-0.202237
-0.114018	-0.072111	-0.072111	-0.107703	-0.107703	0.031623	0.031623	-0.172627	-0.172627
-0.056569	-0.022361	-0.022361	-0.05831	-0.05831	0.060828	0.060828	-0.133417	-0.133417
0.04	0.044721	0.044721	0.01	0.01	0.080623	0.080623	-0.082462	-0.082462
0.117047	0.116619	0.116619	0.070711	0.070711	0.090554	0.090554	-0.022361	-0.022361
0.192354	0.180278	0.180278	0.133417	0.133417	0.10198	0.10198	0.04	0.04
0.238537	0.222036	0.222036	0.196469	0.196469	0.10198	0.10198	0.100499	0.100499
0.272029	0.256125	0.256125	0.237697	0.237697	0.10198	0.10198	0.143178	0.143178
0.284253	0.276586	0.276586	0.266833	0.266833	0.082462	0.082462	0.174642	0.174642
0.290689	0.283196	0.283196	0.278927	0.278927	0.072801	0.072801	0.196469	0.196469
0.29	0.283196	0.283196	0.269258	0.269258	0.05099	0.05099	0.206155	0.206155
0.29	0.268701	0.268701	0.259615	0.259615	0.022361	0.022361	0.196469	0.196469

0.276586	0.254558	0.254558	0.240416	0.240416	0.01	0.01	0.186815	0.186815
0.25	0.219317	0.219317	0.208806	0.208806	0.04	0.04	0.164924	0.164924
0.21095	0.170294	0.170294	0.17088	0.17088	-0.060828	-0.060828	0.123693	0.123693
0.152315	0.116619	0.116619	0.117047	0.117047	-0.090554	-0.090554	0.08544	0.08544
0.1	#DIV/0!	-0.05	0.053852	0.053852	-0.100499	-0.100499	0.036056	0.036056
-0.089443	-0.070711	-0.070711	-0.02	-0.02	-0.110454	-0.110454	-0.022361	-0.022361
-0.161245	-0.156525	-0.156525	-0.104403	-0.104403	-0.110454	-0.110454	-0.080623	-0.080623
-0.234094	-0.219545	-0.219545	-0.1772	-0.1772	-0.120416	-0.120416	-0.140357	-0.14
-0.28178	-0.255539	-0.255539	-0.221359	-0.221359	-0.110454	-0.110454	-0.19	-0.19
-0.291548	-0.255539	-0.255539	-0.230868	-0.230868	-0.100499	-0.100499	-0.230217	-0.230217
-0.269258	-0.241868	-0.241868	-0.230868	-0.230868	-0.080623	-0.080623	-0.2502	-0.260192
-0.241868	-0.214709	-0.214709	-0.218403	-0.218403	0.07	0.07	-0.260768	-0.260768
-0.210238	-0.178885	-0.178885	-0.186815	-0.186815	0.05	0.05	-0.250799	-0.260768
-0.174642	-0.139284	-0.139284	-0.155242	-0.155242	0.04	0.04	-0.231948	-0.231948
-0.126491	-0.094868	-0.094868	-0.114018	-0.114018	0.01	0.01	-0.202237	-0.202237
-0.070711	-0.05	-0.05	-0.072801	-0.072801	0.031623	0.031623	-0.151327	-0.151327
0.02	0.031623	0.031623	-0.01	-0.01	0.060828	0.060828	-0.10198	-0.10198
0.106301	0.098995	0.098995	0.053852	0.053852	0.090554	0.090554	-0.031623	-0.031623
0.178045	0.156205	0.164012	0.126491	0.126491	0.100499	0.100499	0.031623	0.031623
0.234307	0.206155	0.206155	0.186815	0.186815	0.10198	0.10198	0.092195	0.092195
0.276586	0.240832	0.240832	0.228035	0.228035	0.10198	0.10198	0.133417	0.133417
0.283196	0.269072	0.269072	0.259615	0.259615	0.092195	0.092195	0.174642	0.174642
0.296985	0.275862	0.275862	0.269258	0.269258	0.072801	0.072801	0.186815	0.186815
0.296985	0.275862	0.275862	0.269258	0.269258	0.063246	0.063246	0.196469	0.196469
0.297321	0.268701	0.268701	0.259615	0.259615	0.041231	0.041231	0.196469	0.196469
0.284253	0.254558	0.254558	0.240416	0.240416	0.014142	0.014142	0.186815	0.186815
0.25807	0.219317	0.219317	0.221359	0.221359	0.02	0.02	0.164924	0.164924
0.224722	0.184391	0.184391	0.180278	0.180278	0.05	0.05	0.136015	0.136015
0.178885	0.136015	0.136015	0.139284	0.139284	-0.070711	-0.070711	0.104403	0.104403
0.123693	0.076158	0.076158	0.08544	0.08544	-0.090554	-0.090554	0.067082	0.063246
-0.08544	-0.036056	-0.036056	0.022361	0.022361	-0.090554	-0.090554	0.022361	0.022361
-0.10198	-0.094868	-0.094868	-0.05099	-0.05099	0.09	0.09	-0.031623	-0.031623
-0.164924	-0.161245	-0.161245	-0.114018	-0.114018	-0.090554	-0.090554	-0.090554	-0.090554
-0.223607	-0.202485	-0.202485	-0.158114	-0.158114	-0.090554	-0.090554	-0.13	-0.13
-0.246982	-0.208087	-0.208087	-0.189737	-0.189737	-0.070711	-0.070711	-0.170294	-0.170294
-0.244131	-0.202485	-0.202485	-0.193132	-0.193132	0.06	0.06	-0.19105	-0.200998
-0.222036	-0.180278	-0.180278	-0.189737	-0.189737	0.05	0.05	-0.21095	-0.21095
-0.2	-0.158114	-0.158114	-0.17088	-0.17088	0.03	0.03	-0.212132	-0.212132
-0.156205	-0.116619	-0.116619	-0.139284	-0.139284	0	0	-0.202237	-0.202237
-0.106301	-0.072111	-0.072111	-0.098489	-0.098489	0.031623	0.031623	-0.172627	-0.172627
-0.042426	-0.014142	-0.014142	-0.053852	-0.053852	0.05099	0.05099	-0.133417	-0.133417
0.041231	0.05831	0.05831	0.01	0.01	0.070711	0.070711	-0.072801	-0.082462
0.12083	0.122066	0.122066	0.072801	0.072801	0.090554	0.090554	-0.022361	-0.022361
0.18868	0.172047	0.172047	0.136015	0.136015	0.092195	0.092195	0.04	0.04
0.230217	0.214009	0.214009	0.186815	0.186815	0.092195	0.092195	0.092195	0.092195
	0.248395		0.228035		0.092195		0.133417	
	0.254951		0.247386		0.072801		0.164924	
	0.261725		0.247386		0.063246		0.186815	

| Node No. |
|----------|----------|----------|----------|----------|
| 1508     | 5251     | 5245     | 4620     | 4630     |
| Easting  | Northing | Easting  | Northing | Easting  |
| 1525402  | 520469.2 | 1509748  | 569756.8 | 1514009  |
|          |          |          | 568161.3 | 568161.3 |
|          |          |          | 1509196  | 1509196  |
|          |          |          | 563992.9 | 563992.9 |
|          |          |          | 1502888  | 1502888  |

Velocity, fps		Velocity, fps		Velocity, fps		Velocity, fps		Velocity	
Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan	Existing	
0	0	0.04	0.04	-0.041231	-0.041231	0.031623	0.031623	-0.044721	
0	0	0.04	0.04	-0.041231	-0.041231	0.031623	0.031623	-0.044721	
0	0	0.04	0.04	-0.053852	-0.053852	0.031623	0.031623	-0.044721	
-0.01	-0.01	-0.053852	-0.053852	-0.05831	-0.05831	-0.031623	-0.031623	-0.067082	
-0.031623	-0.031623	-0.078102	-0.078102	-0.098995	-0.098995	-0.070711	-0.070711	-0.107703	
-0.060828	-0.060828	-0.164012	-0.164012	-0.180278	-0.180278	-0.166433	-0.161245	-0.189737	
-0.082462	-0.082462	-0.283019	-0.283019	-0.300167	-0.300167	-0.295296	-0.295296	-0.306757	
-0.10198	-0.104403	-0.43909	-0.43909	-0.451774	-0.451774	-0.456508	-0.456508	-0.436578	
-0.114018	-0.114018	-0.600333	-0.591692	-0.599416	-0.599416	-0.626498	-0.626498	-0.579396	
-0.114018	-0.114018	-0.758024	-0.749466	-0.738241	-0.733553	-0.792591	-0.783901	-0.707743	
-0.104403	-0.104403	-0.888369	-0.888369	-0.854751	-0.854751	-0.914166	-0.914166	-0.814371	
-0.094868	-0.094868	-0.987927	-0.974166	-0.940213	-0.935361	-0.99985	-0.991262	-0.898999	
-0.082462	-0.082462	-1.037738	-1.029272	-0.989798	-0.984886	-1.032473	-1.032473	-0.939149	
-0.060828	-0.070711	-1.048475	-1.03465	-0.994786	-0.989798	-1.029272	-1.029272	-0.943663	
-0.05	-0.05	-1.009554	-0.995691	-0.968969	-0.958801	-0.990202	-0.976371	-0.917061	
-0.031623	-0.031623	-0.926553	-0.920869	-0.893588	-0.888369	-0.893085	-0.893085	-0.837257	
0.02	0.02	-0.808022	-0.802122	-0.779359	-0.773886	-0.774209	-0.766094	-0.735731	
0.036056	0.036056	-0.65437	-0.648151	-0.630079	-0.62426	-0.604401	-0.598164	-0.599083	
0.05831	0.05831	-0.452769	-0.452769	-0.453431	-0.446878	-0.403113	-0.39598	-0.420119	
0.076158	0.076158	-0.233238	-0.224722	-0.238537	-0.230217	-0.189737	-0.1772	-0.220227	
0.094868	0.094868	0.134164	0.13	0.1253	0.116619	0.203961	0.202237	0.098995	
0.104403	0.104403	0.361386	0.361386	0.35171	0.342053	0.44643	0.44643	0.284429	
0.114018	0.114018	0.586941	0.577754	0.559464	0.554617	0.668506	0.663099	0.474342	
0.114018	0.114018	0.751332	0.755951	0.703278	0.699714	0.809568	0.804984	0.614654	
0.111803	0.111803	0.873212	0.864523	0.77666	0.77666	0.881192	0.877097	0.69857	
0.10198	0.10198	0.929624	0.921141	0.798123	0.790253	0.895545	0.886848	0.734098	
0.080623	0.080623	0.92358	0.918096	0.772334	0.772334	0.86093	0.86093	0.720139	
0.06	0.05	0.854459	0.854459	0.700071	0.700071	0.790759	0.782304	0.657419	
0.03	0.03	0.75	0.75	0.60208	0.60208	0.662873	0.662873	0.545894	
0.01	0.01	0.588982	0.588982	0.454863	0.446542	0.5	0.492037	0.404969	
-0.044721	-0.044721	0.382099	0.382099	0.288617	0.278927	0.296985	0.282843	0.226716	
-0.063246	-0.063246	0.164924	0.164924	-0.19799	-0.19799	-0.092195	-0.092195	-0.067082	
-0.094868	-0.094868	-0.200998	-0.200998	-0.360555	-0.360555	-0.264764	-0.264764	-0.245153	
-0.10198	-0.10198	-0.436578	-0.436578	-0.578705	-0.575674	-0.538516	-0.538516	-0.445982	
-0.111803	-0.111803	-0.666483	-0.657647	-0.756439	-0.756439	-0.76922	-0.76922	-0.618466	
-0.110454	-0.110454	-0.857555	-0.85235	-0.894707	-0.890056	-0.935361	-0.930591	-0.747329	
-0.11	-0.11	-0.984784	-0.970979	-0.972471	-0.967471	-1.008464	-1.008464	-0.836301	
-0.10198	-0.10198	-1.009554	-1.004042	-0.993227	-0.987927	-1.01548	-1.007025	-0.881192	
-0.08544	-0.08544	-0.954411	-0.948683	-0.943027	-0.937443	-0.951315	-0.937443	-0.845991	
-0.05831	-0.05831	-0.85	-0.836002	-0.838153	-0.832346	-0.824197	-0.824197	-0.761577	
-0.041231	-0.041231	-0.682495	-0.674759	-0.682495	-0.67624	-0.65437	-0.646607	-0.615873	
0.05831	0.05831	-0.46669	-0.459674	-0.481041	-0.473814	-0.4245	-0.4245	-0.428019	

0.078102	0.078102	-0.206155	-0.206155	-0.246982	-0.237697	-0.181108	-0.171172	-0.202485
0.108167	0.108167	0.220907	0.220907	0.208806	0.208806	0.300167	0.3	0.164924
0.1253	0.134164	0.524976	0.524976	0.497293	0.487647	0.616847	0.616847	0.431741
0.139284	0.139284	0.810247	0.801124	0.747329	0.747329	0.887694	0.878465	0.670671
0.148661	0.148661	1.03769	1.03769	0.922822	0.922822	1.060236	1.064519	0.861626
0.148661	0.148661	1.209339	1.209339	1.031746	1.031746	1.17618	1.167262	0.986154
0.148661	0.148661	1.305105	1.305105	1.080046	1.080046	1.234706	1.225887	1.057024
0.139284	0.139284	1.351518	1.343019	1.104219	1.090183	1.244227	1.235476	1.078378
0.107703	0.111803	1.339888	1.326084	1.072986	1.066677	1.218031	1.209339	1.055509
0.080623	0.080623	1.264792	1.264792	1.01415	1.007671	1.147388	1.138771	0.992975
0.056569	0.056569	1.153776	1.145469	0.912853	0.906091	1.032473	1.018725	0.886848
-0.031623	-0.031623	0.982293	0.974166	0.770779	0.756637	0.868217	0.859826	0.732462
-0.053852	-0.053852	0.754321	0.748131	0.570088	0.562228	0.638201	0.630079	0.536004
-0.1	-0.1	0.473814	0.466669	0.338378	0.328938	0.360694	0.360694	0.298329
-0.130384	-0.130384	0.171172	0.171172	-0.236008	-0.230217	-0.102956	-0.108167	-0.148661
-0.151327	-0.151327	-0.301496	-0.311448	-0.504876	-0.504876	-0.412311	-0.412311	-0.401995
-0.162788	-0.162788	-0.653911	-0.653911	-0.79712	-0.806536	-0.78924	-0.78924	-0.6772
-0.152971	-0.152971	-0.971288	-0.971288	-1.037882	-1.037882	-1.091238	-1.091238	-0.898888
-0.141421	-0.141421	-1.219385	-1.219385	-1.221188	-1.207684	-1.284134	-1.275343	-1.074244
-0.130384	-0.130384	-1.351518	-1.346291	-1.31727	-1.312288	-1.366931	-1.366931	-1.198666
-0.12	-0.12	-1.38134	-1.38134	-1.349704	-1.336001	-1.390863	-1.382317	-1.252198
-0.100499	-0.100499	-1.3618	-1.356245	-1.315485	-1.310267	-1.356798	-1.343019	-1.247798
-0.082462	-0.082462	-1.300961	-1.287051	-1.245552	-1.234909	-1.267793	-1.259365	-1.185327
-0.053852	-0.053852	-1.182244	-1.176435	-1.139912	-1.128982	-1.139912	-1.126055	-1.083005
-0.031623	-0.031623	-1.028008	-1.014002	-0.990454	-0.979081	-0.968349	-0.954411	-0.936483
0.042426	0.042426	-0.830963	-0.824621	-0.80604	-0.8	-0.762168	-0.756042	-0.754718
0.076158	0.076158	-0.601082	-0.594138	-0.594643	-0.581378	-0.52345	-0.516624	-0.552178
0.104403	0.104403	-0.332866	-0.3245	-0.344093	-0.342053	-0.264197	-0.250599	-0.318277
0.123693	0.123693	0.15	0.142127	0.152315	0.143178	0.178885	0.174642	0.100499
0.133417	0.133417	0.355106	0.345254	0.32249	0.323883	0.441475	0.441475	0.251794
0.143178	0.143178	0.588727	0.592368	0.560803	0.560803	0.687095	0.681542	0.464866
0.131529	0.131529	0.782624	0.782624	0.729452	0.720694	0.845281	0.845281	0.627694
0.131529	0.131529	0.909175	0.909175	0.807094	0.812712	0.921792	0.921792	0.720902
0.110454	0.110454	0.96566	0.96566	0.834086	0.826196	0.936483	0.936483	0.769675
0.090554	0.090554	0.959635	0.959635	0.800562	0.800562	0.902109	0.893588	0.751532
0.06	0.06	0.890505	0.890505	0.735391	0.735391	0.818352	0.818352	0.684251
0.031623	0.031623	0.77801	0.77801	0.623699	0.623699	0.690652	0.690652	0.573062
0.02	0.02	0.60959	0.603075	0.477074	0.477074	0.520096	0.520096	0.413401
-0.036056	-0.036056	0.403609	0.403609	0.310483	0.300832	0.311127	0.304138	0.234307
-0.067082	-0.067082	0.186815	0.186815	-0.206155	-0.206155	-0.100499	-0.100499	-0.063246
-0.08544	-0.08544	-0.182483	-0.182483	-0.35	-0.35	-0.25318	-0.25318	-0.223607
-0.094868	-0.094868	-0.411096	-0.411096	-0.563205	-0.563205	-0.516236	-0.516236	-0.433244
-0.10198	-0.10198	-0.644127	-0.644127	-0.743236	-0.739256	-0.755844	-0.742496	-0.596154
-0.100499	-0.100499	-0.83006	-0.83006	-0.867698	-0.867698	-0.90824	-0.90824	-0.724983
-0.1	-0.1	-0.948736	-0.948736	-0.950158	-0.945145	-0.986154	-0.977548	-0.813941
-0.090554	-0.090554	-0.973499	-0.973499	-0.962549	-0.957183	-0.979439	-0.979439	-0.84534
-0.072801	-0.072801	-0.918368	-0.918368	-0.912634	-0.906973	-0.91526	-0.906973	-0.810062
-0.05	-0.05	-0.814002	-0.8	-0.808022	-0.802122	-0.79404	-0.788162	-0.730616
0.04	0.04	-0.645368	-0.638905	-0.652993	-0.646607	-0.62482	-0.610737	-0.585235
0.05	0.05	-0.4245	-0.4245	-0.445982	-0.438634	-0.389487	-0.389487	-0.398246
0.086023	0.086023	-0.174642	-0.174642	-0.218403	-0.208806	0.160312	0.160312	-0.174929
0.111803	0.111803	0.24	0.24	0.22561	0.223607	0.320156	0.320156	0.181108

0.13	0.13	0.537587	0.537587	0.509608		0.5	0.629365	0.629365	0.443847
0.139284	0.148661	0.801124	0.801124	0.751532	0.751532	0.878465	0.878465	0.670671	
0.145602	0.145602	1.028834		1.02	0.914166	0.905539	1.042161	1.042161	0.839345
0.145602	0.145602	1.173371	1.164689	1.001249	1.001249	1.136002	1.136002	0.95462	
0.145602	0.145602	1.251958	1.251958	1.044031	1.044031	1.181186	1.181186	1.016366	
0.126491	0.126491	1.284718	1.276244	1.046375	1.046375	1.190798	1.182074	1.015529	
0.104403	0.104403	1.259365	1.25096	1.015332	1.001249	1.142366	1.133711	0.98387	
0.067082	0.076158	1.175968	1.167647	0.935094	0.928493	1.058159	1.049571	0.90824	
0.042426	0.042426	1.042929	1.034698	0.820366	0.813449	0.929624	0.921141	0.797559	
-0.028284	-0.022361	0.858021	0.858021	0.658559	0.658559	0.748866	0.740608	0.635138	
-0.06	-0.06	0.617171	0.617171	0.454863	0.449444	0.506063	0.506063	0.42638	
-0.100499	-0.100499	0.328024	0.322025	-0.240208	-0.230868	0.222036	0.216333	0.183848	
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-0.152971	-0.152971	-0.436807	-0.436807	-0.618466	-0.620967	-0.550273	-0.559732	-0.502195	
-0.152971	-0.152971	-0.760263	-0.760263	-0.887694	-0.887694	-0.899611	-0.899611	-0.74	
-0.143178	-0.143178	-1.048094	-1.048094	-1.095673	-1.091238	-1.149478	-1.149478	-0.94541	
-0.131529	-0.131529	-1.251958	-1.246796	-1.235476	-1.23065	-1.293754	-1.285029	-1.104943	
-0.120416	-0.120416	-1.334541	-1.334541	-1.308625	-1.294952	-1.349704	-1.341119	-1.194069	
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-0.090554	-0.090554	-1.303572	-1.295299	-1.262458	-1.251958	-1.290039	-1.276244	-1.194194	
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0.031623	0.031623	-0.904268	-0.898109	-0.880057	-0.868389	-0.844038	-0.83006	-0.824924	
0.05831	0.05831	-0.686804	-0.680147	-0.674759	-0.668431	-0.617171	-0.610737	-0.635138	
0.08544	0.08544	-0.432782	-0.432782	-0.445982	-0.438634	-0.362353	-0.362353	-0.404599	
0.117047	0.114018	-0.181108	-0.181108	-0.203961	-0.184391	0.148661	0.139284	-0.17	
0.123693	0.133417	0.2502	0.2502	0.231948	0.220907	0.331361	0.332415	0.161245	
0.133417	0.133417	0.505964	0.505964	0.483839	0.474342	0.60407	0.60407	0.395601	
0.133417	0.143178	0.724983	0.715891	0.679779	0.675352	0.801124	0.805295	0.579396	
0.131529	0.131529	0.885889	0.877097	0.79925	0.796116	0.912414	0.912414	0.707743	
0.121655	0.121655	0.977548	0.968969	0.844038	0.844038	0.948947	0.953834	0.778781	
0.100499	0.100499	0.998599	0.998599	0.845044	0.837377	0.941541	0.941541	0.782943	
0.08	0.08	0.965194	0.956922	0.792465	0.792465	0.893588	0.885099	0.74686	
0.05	0.05	0.874185	0.874185	0.707248	0.707248	0.787718	0.787718	0.657647	
0.022361	0.022361	0.742024	0.734098	0.58258	0.58258	0.646375	0.646375	0.533385	
-0.022361	-0.022361	0.559732	0.559732	0.430465	0.430465	0.462277	0.462277	0.374433	
-0.044721	-0.044721	0.340588	0.334215	0.261725	0.251794	0.248395	0.248395	0.183848	
-0.076158	-0.076158	-0.140357	-0.140357	-0.219545	-0.219545	-0.092195	-0.092195	-0.080623	
-0.094868	-0.094868	-0.240208	-0.240208	-0.413038	-0.413038	-0.320156	-0.320156	-0.278927	
-0.104403	-0.104403	-0.475395	-0.475395	-0.613514	-0.613514	-0.586941	-0.577754	-0.481041	
-0.111803	-0.111803	-0.698355	-0.698355	-0.782943	-0.782943	-0.804984	-0.796053	-0.640781	
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-0.092195	-0.092195	-0.973499	-0.965194	-0.962549	-0.957183	-0.976371	-0.970979	-0.85	
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-0.042426	-0.042426	-0.784092	-0.77801	-0.77801	-0.77201	-0.764003	-0.758024	-0.708308	
0.04	0.04	-0.60959	-0.603075	-0.623699	-0.610737	-0.581378	-0.574891	-0.554707	
0.056569	0.056569	-0.389487	-0.375366	-0.404599	-0.403609	-0.348281	-0.342053	-0.362353	
0.080623	0.080623	0.15	0.14	-0.19105	-0.181108	0.148661	0.143178	-0.139284	
0.107703	0.107703	0.27074	0.27074	0.250799	0.250799	0.351283	0.351283	0.20025	
0.126491	0.126491	0.550273	0.553624	0.524976	0.515461	0.632456	0.632456	0.44643	
0.136015	0.136015	0.796241	0.796241	0.742496	0.733485	0.860058	0.860058	0.65192	

0.145602	0.145602	0.997647	0.988838	0.883233	0.883233	1.010792	1.001798	0.811542	
0.143178	0.143178	1.120045	1.120045	0.962601	0.956922	1.091284	1.082405	0.913893	
0.133417	0.133417	1.185116	1.185116	0.992018	0.992018	1.118928	1.118928	0.953415	
0.114018	0.114018	1.195701	1.195701	0.980816	0.974526	1.101454	1.101454	0.948472	
0.092195	0.092195	1.156633	1.14826	0.936056	0.921954	1.044462	1.044462	0.894427	
0.053852	0.053852	1.056835	1.05119	0.8422	0.834865	0.946678	0.938136	0.805295	
0.022361	0.028284	0.91022	0.902109	0.707248	0.707248	0.796116	0.787718	0.677422	
-0.022361	-0.022361	0.71218	0.704344	0.534135	0.534135	0.602163	0.602163	0.510392	
-0.070711	-0.070711	0.46669	0.459674	0.332415	0.32311	0.361248	0.353836	0.296985	
-0.10198	-0.10198	0.189737	0.189737	-0.205183	-0.19799	-0.100499	-0.100499	-0.107703	
-0.133417	-0.133417	-0.24	-0.24	-0.431856	-0.431856	-0.327567	-0.327567	-0.311448	
-0.143178	-0.143178	-0.547814	-0.547814	-0.708378	-0.708378	-0.681542	-0.681542	-0.575674	
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-0.141421	-0.141421	-1.094166	-1.094166	-1.118258	-1.104762	-1.167647	-1.167647	-0.975756	
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	-0.11	-0.11	-1.295415	-1.281601	-1.260516	-1.255388	-1.30173	-1.287983	-1.162755
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0.042426	0.042426	-0.745185	-0.745185	-0.732462	-0.720069	-0.69029	-0.67624	-0.687968	
0.076158	0.076158	-0.516236	-0.509117	-0.516236	-0.509313	-0.452548	-0.438406	-0.478017	
0.098489	0.098489	-0.259422	-0.254951	-0.272947	-0.264197	-0.199249	-0.186815	-0.248395	
0.117047	0.117047	0.165529	0.161555	0.158114	0.152643	0.231948	0.231948	0.106301	
0.133417	0.133417	0.412311	0.412311	0.38833	0.390512	0.509608	0.5	0.315753	
0.133417	0.133417	0.65	0.653911	0.61327	0.61327	0.735391	0.739256	0.518652	
0.131529	0.133417	0.831865	0.831865	0.77026	0.766616	0.89	0.881022	0.672309	
0.131529	0.131529	0.958801	0.958801	0.848764	0.840536	0.952943	0.957706	0.774726	
0.111803	0.110454	1.023963	1.01548	0.868332	0.868332	0.976166	0.967471	0.810247	
0.100499	0.100499	1.01789	1.004042	0.84386	0.836301	0.941541	0.941541	0.796241	
0.070711		0.07	0.956922	0.948683	0.777946	0.777946	0.871321	0.871321	0.737902
	0.04	0.04	0.852115	0.852115	0.686222	0.672086	0.751665	0.751665	0.635295
0.014142	0.014142	0.69814	0.69029	0.542033	0.534135	0.602163	0.602163	0.502494	
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0.031623	0.031623	-0.573847	-0.559732	-0.580517	-0.573847	-0.538145	-0.531507	-0.526972	
0.064031	0.064031	-0.348281	-0.340588	-0.370135	-0.362353	-0.314006	-0.308058	-0.333017	
0.089443	0.089443	0.131529	0.131529	0.17	0.16	0.138924	0.144222	-0.126491	
0.107703	0.107703	0.271662	0.271662	0.260192	0.260192	0.352278	0.352278	0.2	
0.123693	0.123693	0.531413	0.531413	0.505964	0.505964	0.613514	0.613514	0.4272	
0.133417	0.133417	0.760592	0.760592	0.711126	0.706612	0.828553	0.81939	0.620322	
0.143178	0.143178	0.930591	0.930591	0.83863	0.83006	0.957079	0.948103	0.757694	
0.131529	0.131529	1.044462	1.044462	0.904434	0.898721	1.02	1.011187	0.837735	

0.121655	0.121655	1.096038	1.082266	0.920054	0.91214	1.029563	1.029563	0.868159
0.10198	0.10198	1.084528	1.084528	0.887299	0.887299	1.003444	0.994786	0.854283
0.080623	0.080623	1.023426	1.023426	0.835464	0.828794	0.932952	0.924392	0.796053
0.041231	0.041231	0.918368	0.918368	0.728354	0.728354	0.813019	0.80455	0.693542
0.01	0.01	0.764003	0.75	0.588982	0.581378	0.654599	0.654599	0.552268
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-0.10198	-0.10198	-0.120416	-0.120416	-0.264764	-0.274591	-0.151327	-0.151327	-0.151327
-0.123693	-0.123693	-0.349285	-0.35171	-0.526308	-0.526308	-0.455412	-0.464866	-0.402616
-0.133417	-0.133417	-0.64405	-0.64405	-0.766942	-0.766942	-0.769675	-0.769675	-0.639062
-0.131529	-0.131529	-0.9005	-0.9005	-0.970464	-0.957079	-1.010742	-1.010742	-0.815414
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0.031623	0.031623	-0.782432	-0.776209	-0.756042	-0.75	-0.734098	-0.720069	-0.718679
0.05831	0.05831	-0.573149	-0.566392	-0.566392	-0.559732	-0.516624	-0.502494	-0.538238
0.08544	0.08544	-0.322025	-0.322025	-0.336006	-0.328024	-0.269258	-0.260768	-0.318277
0.104403	0.104403	0.134164	0.1253	0.148661	0.136015	0.158114	0.152643	0.11
0.123693	0.123693	0.323883	0.323883	0.301496	0.302655	0.407922	0.41	0.230868
0.133417	0.133417	0.579396	0.570088	0.547814	0.538516	0.661287	0.664831	0.452217
0.133417	0.133417	0.778203	0.778203	0.724707	0.715891	0.83672	0.840952	0.623939
0.131529	0.131529	0.926607	0.926607	0.823772	0.823772	0.943663	0.939415	0.748465
0.121655	0.121655	1.013558	1.004988	0.872009	0.864002	0.980051	0.976166	0.810247
0.110454	0.110454	1.03465	1.03465	0.866833	0.859127	0.972471	0.972471	0.814371
0.090554	0.090554	1.009554	1.001249	0.82134	0.82134	0.924392	0.924392	0.778203
0.060828	0.060828	0.926553	0.926553	0.742496	0.742496	0.835284	0.835284	0.706612
0.03	0.03	0.808022	0.808022	0.637024	0.630317	0.707248	0.707248	0.595399
0.01	0.01	0.640312	0.632535	0.486004	0.480104	0.544059	0.536004	0.449444
-0.031623	-0.041231	0.431393	0.431393	0.310161	0.310161	0.333017	0.333017	0.270185
-0.072801	-0.072801	0.210238	0.201246	-0.183576	-0.183576	0.117047	0.114018	0.082462
-0.092195	-0.092195	-0.148661	-0.145602	-0.32	-0.31	-0.200998	-0.200998	-0.19105
-0.10198	-0.111803	-0.366879	-0.366879	-0.531601	-0.531601	-0.462385	-0.462385	-0.388973
-0.110454	-0.110454	-0.585918	-0.585918	-0.711758	-0.711758	-0.70214	-0.70214	-0.560803
-0.120416	-0.120416	-0.785493	-0.785493	-0.84534	-0.84534	-0.877097	-0.872353	-0.693542
-0.11	-0.11	-0.918096	-0.912688	-0.936483	-0.936483	-0.972471	-0.963846	-0.791581
-0.100499	-0.100499	-0.967988	-0.959635	-0.957183	-0.951893	-0.987927	-0.979439	-0.836481
-0.082462	-0.082462	-0.934773	-0.926553	-0.929139	-0.92358	-0.931933	-0.931933	-0.827647
-0.067082	-0.067082	-0.844038	-0.844038	-0.838153	-0.832346	-0.832346	-0.832346	-0.756637
-0.036056	-0.036056	-0.71218	-0.704344	-0.71218	-0.706045	-0.692026	-0.684105	-0.655134
0.031623	0.031623	-0.538145	-0.531507	-0.544885	-0.545619	-0.509902	-0.502494	-0.504777
0.05831	0.05831	-0.326497	-0.320156	-0.35609	-0.348281	-0.294109	-0.288444	-0.318904
0.08544	0.08544	0.121655	0.121655	0.160312	0.150333	0.130384	0.136015	-0.126491
0.104403		0.260768		0.240208		0.331361		0.180278
0.123693		0.490408		0.474342		0.56921		0.386005
0.131529		0.693542		0.657419		0.761577		0.557136

	Node No.		Node No.		Node No.		Node No.	
	4325		5270		4100		2511	
Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing
559112.8	1510915	559330.2	1497903	564262.9	1492917	552666.9	1479656	543518.6
$\gamma$ , fps	Velocity, fps		Velocity, fps		Velocity, fps		Velocity, fps	
Plan	Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan
-0.044721	-0.041231	-0.041231	-0.05831	-0.05831	-0.044721	-0.044721	-0.031623	-0.03
-0.044721	-0.041231	-0.041231	-0.05831	-0.05831	-0.044721	-0.044721	-0.031623	-0.03
-0.044721	-0.044721	-0.044721	-0.05831	-0.05831	-0.05	-0.05	-0.04	-0.04
-0.067082	-0.05831	-0.05831	-0.064031	-0.064031	-0.056569	-0.056569	-0.060828	-0.060828
-0.107703	-0.106301	-0.106301	-0.106301	-0.106301	-0.098489	-0.098489	-0.114018	-0.114018
-0.189737	-0.194165	-0.18868	-0.180278	-0.180278	-0.180278	-0.1772	-0.199249	-0.199249
-0.306757	-0.32249	-0.32249	-0.288444	-0.288444	-0.281603	-0.281603	-0.306757	-0.306757
-0.436578	-0.475079	-0.475079	-0.432666	-0.432666	-0.408044	-0.408044	-0.423792	-0.423792
-0.570088	-0.632851	-0.632851	-0.580086	-0.574282	-0.544059	-0.534509	-0.524976	-0.524976
-0.707743	-0.763217	-0.760066	-0.714003	-0.714003	-0.657875	-0.657875	-0.616847	-0.616847
-0.814371	-0.859826	-0.859826	-0.834086	-0.834086	-0.750267	-0.750267	-0.6772	-0.6772
-0.898999	-0.91526	-0.906973	-0.918314	-0.918314	-0.815414	-0.815414	-0.713092	-0.713092
-0.939149	-0.934773	-0.926553	-0.980816	-0.980816	-0.83672	-0.83672	-0.722772	-0.722772
-0.943663	-0.918368	-0.91022	-1.001249	-0.987168	-0.827345	-0.831865	-0.710634	-0.710634
-0.90824	-0.866083	-0.858021	-0.971854	-0.971854	-0.792591	-0.792591	-0.657343	-0.657343
-0.837257	-0.77801	-0.770065	-0.906863	-0.906863	-0.724017	-0.724017	-0.580517	-0.580517
-0.735731	-0.65437	-0.646607	-0.813941	-0.799812	-0.630079	-0.622013	-0.47676	-0.466905
-0.590762	-0.509902	-0.502494	-0.671789	-0.671789	-0.502494	-0.502494	-0.341321	-0.341321
-0.420119	-0.318904	-0.31241	-0.502494	-0.502494	-0.35805	-0.35805	-0.192354	-0.192354
-0.220227	-0.131529	-0.120416	-0.302324	-0.294109	-0.222036	-0.222036	-0.094868	-0.094868
0.106301	0.18	0.190263	0.100499	0.10198	0.205183	0.212603	0.206155	0.206155
0.284429	0.392173	0.395601	0.206155	0.206155	0.333766	0.333766	0.358469	0.358469
0.474342	0.554617	0.559017	0.411825	0.411825	0.481664	0.49163	0.480833	0.480833
0.614654	0.676018	0.676018	0.568595	0.576888	0.611882	0.611882	0.545711	0.545711
0.69857	0.744312	0.749466	0.678012	0.678012	0.696419	0.696419	0.572713	0.582495
0.734098	0.768505	0.768505	0.718401	0.710634	0.730548	0.730548	0.568859	0.568859
0.720139	0.737835	0.743303	0.701783	0.701783	0.709366	0.709366	0.52469	0.52469
0.661891	0.668506	0.67424	0.651153	0.651153	0.648845	0.648845	0.442832	0.452769
0.550727	0.564004	0.556058	0.558659	0.558659	0.545894	0.545894	0.340588	0.340588
0.404969	0.403609	0.403609	0.432782	0.432782	0.402244	0.402244	0.210238	0.210238
0.226716	0.216333	0.216333	0.264197	0.264197	0.247588	0.247588	0.086023	0.086023
-0.067082	-0.108167	-0.108167	-0.12083	-0.12083	-0.111803	-0.111803	-0.120416	-0.120416
-0.245153	-0.332415	-0.332415	-0.25318	-0.25318	-0.212132	-0.212132	-0.241868	-0.241868
-0.445982	-0.572713	-0.572713	-0.474236	-0.474236	-0.403113	-0.403113	-0.358469	-0.358469
-0.618466	-0.765376	-0.765376	-0.665733	-0.665733	-0.570088	-0.570088	-0.455412	-0.455412
-0.747329	-0.87983	-0.885099	-0.814002	-0.80604	-0.692892	-0.692892	-0.522015	-0.522015
-0.840773	-0.929139	-0.929139	-0.894986	-0.894986	-0.765572	-0.765572	-0.567539	-0.567539
-0.872353	-0.91022	-0.902109	-0.936056	-0.936056	-0.773692	-0.773692	-0.560892	-0.560892
-0.845991	-0.842021	-0.834086	-0.914385	-0.914385	-0.725603	-0.725603	-0.516236	-0.516236
-0.752928	-0.717008	-0.709366	-0.835464	-0.835464	-0.635138	-0.640703	-0.4219	-0.4219
-0.615873	-0.551725	-0.544518	-0.700357	-0.693109	-0.510882	-0.510882	-0.300167	-0.300167
-0.428019	-0.342053	-0.342053	-0.516624	-0.509313	-0.35	-0.35	-0.161245	-0.161245

-0.202485	0.141421	0.141421	-0.283019	-0.274591		0.21		0.21	0.161555	0.161555
0.164924	0.27074	0.27074	0.1	0.1	0.268328	0.268328	0.352278	0.352278		
0.431741	0.531413	0.531413	0.345398	0.345398	0.470106	0.470106	0.555428	0.555428		
0.680074	0.738241	0.742496	0.605392	0.605392	0.677422	0.67897	0.727324	0.727324		
0.861626	0.912414	0.90824	0.812712	0.812712	0.865852	0.865852	0.842021	0.842021		
0.986154	1.020833	1.020833	0.944034	0.944034	0.993277	0.993277	0.919239	0.919239		
1.057024	1.089082	1.080463	1.026158	1.026158	1.05622	1.059481	0.967729	0.970155		
1.069299	1.104536	1.096038	1.058915	1.058915	1.069766	1.069766	0.989545	0.989545		
1.046518	1.084528	1.081665	1.056456	1.056456	1.04	1.04	0.982344	0.982344		
0.984124	1.020784	1.012571	1.012373	1.012373	0.966644	0.966644	0.941116	0.941116		
0.886848	0.916079	0.90802	0.926337	0.926337	0.858662	0.858662	0.848999	0.851645		
0.732462	0.754321	0.746525	0.785684	0.785684	0.707107	0.707107	0.708802	0.708802		
0.542033	0.544885	0.544518	0.598164	0.598164	0.518652	0.510392	0.524976	0.524976		
0.298329	0.291548	0.291548	0.375766	0.375766	0.283196	0.283196	0.287924	0.287924		
-0.148661	-0.165529	-0.178885	-0.18868	-0.18868	-0.147648	-0.147648	0.05	0.044721		
-0.401995	-0.490408	-0.5	-0.393192	-0.394588	-0.350571	-0.350571	-0.220907	-0.220907		
-0.6772	-0.827647	-0.827647	-0.702638	-0.702638	-0.618142	-0.618142	-0.452769	-0.452769		
-0.902497	-1.06066	-1.06066	-0.948736	-0.948736	-0.839345	-0.839345	-0.652763	-0.652763		
-1.074244	-1.19365	-1.190378	-1.128007	-1.128007	-0.992975	-0.992975	-0.764199	-0.76531		
-1.198666	-1.242578	-1.248079	-1.252517	-1.252517	-1.077033	-1.077033	-0.820366	-0.820366		
-1.252198	-1.245351	-1.242779	-1.3228	-1.315029	-1.105712	-1.105712	-0.874757	-0.874757		
-1.238911	-1.198541	-1.190378	-1.321363	-1.321363	-1.082266	-1.082266	-0.878635	-0.878635		
-1.181186	-1.11018	-1.102089	-1.277811	-1.270157	-1.024744	-1.015972	-0.827647	-0.827647		
-1.074244	-0.986002	-0.978008	-1.184441	-1.170342	-0.924392	-0.921141	-0.733485	-0.733485		
-0.927847	-0.834086	-0.818352	-1.041393	-1.027278	-0.796304	-0.796304	-0.608276	-0.608276		
-0.754718	-0.645368	-0.637809	-0.87046	-0.856329	-0.645368	-0.637809	-0.462709	-0.462709		
-0.544059	-0.431393	-0.417253	-0.657647	-0.650538	-0.468615	-0.468615	-0.300167	-0.300167		
-0.311127	-0.196977	-0.183848	-0.425206	-0.411096	-0.297321	-0.297321	-0.142127	-0.142127		
0.10198	0.152971	0.151327	-0.174642	-0.161555	0.219545	0.224722	0.17	0.17		
0.251794	0.37	0.382753	0.141421	0.151327	0.329848	0.329848	0.327567	0.327567		
0.474342	0.567979	0.572451	0.380789	0.380789	0.490408	0.490408	0.458803	0.458803		
0.627694	0.703278	0.703278	0.568595	0.574282	0.621691	0.631506	0.548179	0.548179		
0.720902	0.785493	0.785493	0.692026	0.692026	0.715681	0.715681	0.584637	0.584637		
0.769675	0.80455	0.80455	0.738783	0.738783	0.749466	0.758947	0.578705	0.578705		
0.751532	0.779359	0.771038	0.73	0.73	0.731642	0.731642	0.52469	0.526118		
0.684251	0.696348	0.70214	0.672086	0.672086	0.667083	0.667083	0.451774	0.452769		
0.573062	0.584123	0.576281	0.586941	0.586941	0.554707	0.554707	0.340147	0.340147		
0.418808	0.4245	0.4245	0.446878	0.446878	0.410488	0.410488	0.21095	0.21095		
0.234307	0.230217	0.230217	0.277849	0.272947	0.254558	0.254558	0.084853	0.084853		
-0.063246	-0.106301	-0.106301	-0.126491	-0.126491	-0.110454	-0.110454	-0.128062	-0.120416		
-0.223607	-0.320156	-0.320156	-0.241868	-0.241868	-0.203961	-0.203961	-0.246982	-0.246982		
-0.433244	-0.559464	-0.559464	-0.460977	-0.460977	-0.383275	-0.383275	-0.349285	-0.349285		
-0.596154	-0.751798	-0.751798	-0.65192	-0.65192	-0.548179	-0.548179	-0.436578	-0.436578		
-0.724983	-0.866083	-0.857555	-0.792023	-0.792023	-0.661287	-0.661287	-0.5	-0.5		
-0.804984	-0.901388	-0.906973	-0.873212	-0.873212	-0.734098	-0.734098	-0.536004	-0.523927		
-0.836481	-0.888144	-0.880057	-0.907855	-0.900278	-0.742428	-0.742428	-0.529528	-0.519711		
-0.810062	-0.80604	-0.804301	-0.878635	-0.878635	-0.694622	-0.694622	-0.475184	-0.475184		
-0.722011	-0.68884	-0.681175	-0.799812	-0.799812	-0.604649	-0.604649	-0.391152	-0.391152		
-0.585235	-0.52345	-0.516236	-0.664831	-0.664831	-0.482701	-0.481664	-0.27074	-0.280713		
-0.398246	-0.322025	-0.308058	-0.474236	-0.474236	-0.330151	-0.330151	-0.144222	-0.15		
-0.17	0.126491	0.13	-0.246982	-0.241868	0.19105	0.19105	0.17	0.17		
0.181108	0.291548	0.291548	0.107703	0.107703	0.269258	0.269258	0.360555	0.360555		

0.443847	0.531413	0.534883	0.358469	0.358469	0.47	0.47	0.551543	0.551543
0.670671	0.738241	0.742496	0.610574	0.610574	0.669104	0.67897	0.705195	0.705195
0.839345	0.894707	0.894707	0.804487	0.804487	0.846463	0.846463	0.810432	0.810432
0.95462	0.989798	0.989798	0.922009	0.922009	0.955092	0.955092	0.875557	0.875557
1.007224	1.044462	1.035857	0.982344	0.982344	1.009009	1.009009	0.91444	0.91444
1.015529	1.046231	1.043072	1.015332	1.007671	1.010198	1.010198	0.926499	0.926499
0.98387	1.009554	1.001249	0.992472	0.992472	0.9717	0.9717	0.894986	0.894986
0.90824	0.926553	0.932309	0.933809	0.933809	0.885664	0.885664	0.834326	0.834326
0.788923	0.814002	0.80604	0.834386	0.827345	0.764788	0.769415	0.734983	0.734983
0.635138	0.646607	0.645368	0.680147	0.680147	0.605392	0.605392	0.59203	0.582409
0.418688	0.4245	0.417732	0.488262	0.482597	0.406079	0.406079	0.386005	0.388973
0.183848	0.172627	0.172627	0.254951	0.254951	0.201246	0.201246	0.161555	0.152315
-0.223607	-0.27074	-0.280179	-0.221359	-0.221359	-0.201246	-0.201246	-0.09	-0.09
-0.502195	-0.614654	-0.620322	-0.502892	-0.502892	-0.440454	-0.440454	-0.323883	-0.323883
-0.74	-0.907855	-0.907855	-0.782943	-0.787718	-0.684471	-0.684471	-0.534603	-0.534603
-0.94541	-1.097725	-1.097725	-1.00439	-1.00439	-0.888876	-0.888876	-0.68593	-0.68593
-1.104943	-1.195701	-1.187266	-1.15421	-1.15421	-1.012423	-1.012423	-0.769415	-0.769415
-1.194069	-1.225887	-1.21758	-1.258769	-1.258769	-1.062309	-1.062309	-0.823772	-0.823772
-1.211982	-1.192812	-1.190378	-1.293213	-1.293213	-1.069299	-1.069299	-0.847231	-0.847231
-1.185327	-1.132254	-1.124144	-1.271417	-1.271417	-1.024207	-1.028834	-0.827647	-0.827647
-1.105351	-1.030049	-1.022008	-1.206151	-1.192057	-0.958801	-0.950158	-0.764853	-0.764853
-0.976166	-0.89202	-0.884081	-1.084666	-1.077126	-0.837616	-0.837616	-0.651153	-0.651153
-0.816333	-0.724707	-0.717008	-0.927631	-0.927631	-0.69814	-0.69814	-0.514782	-0.514782
-0.626817	-0.516624	-0.509313	-0.735527	-0.735527	-0.530377	-0.530377	-0.360139	-0.360139
-0.404599	-0.286007	-0.280179	-0.516624	-0.502494	-0.358469	-0.353553	-0.189737	-0.189737
-0.165529	0.108167	0.106301	-0.266271	-0.260768	0.222036	0.223607	0.130384	0.130384
0.171172	0.286356	0.298329	0.086023	0.086023	0.268328	0.277308	0.270185	0.270185
0.395601	0.501597	0.505668	0.295466	0.299666	0.430465	0.430116	0.421545	0.421545
0.579396	0.671193	0.671193	0.513128	0.513128	0.585491	0.586941	0.531601	0.541202
0.707743	0.775242	0.78032	0.666108	0.672012	0.700928	0.700928	0.596657	0.596657
0.778781	0.821523	0.821523	0.748131	0.754321	0.765376	0.765376	0.611882	0.611882
0.782943	0.818352	0.809938	0.759276	0.759276	0.774919	0.778332	0.588558	0.588558
0.74686	0.762758	0.762758	0.736614	0.736614	0.726154	0.726154	0.52469	0.52469
0.657647	0.666108	0.672012	0.664831	0.664831	0.64405	0.64405	0.442832	0.442832
0.533385	0.54037	0.54037	0.551725	0.551725	0.519711	0.519711	0.320624	0.320624
0.374433	0.374833	0.367696	0.406079	0.406079	0.372022	0.372022	0.19105	0.190263
0.183848	0.178885	0.178885	0.228473	0.228473	0.214009	0.214009	0.064031	0.064031
-0.080623	-0.143178	-0.143178	-0.120416	-0.120416	-0.116619	-0.108167	-0.128062	-0.128062
-0.278927	-0.379473	-0.379473	-0.298329	-0.298329	-0.250799	-0.2502	-0.254951	-0.254951
-0.481041	-0.621691	-0.612699	-0.514296	-0.514296	-0.425793	-0.425793	-0.364005	-0.364005
-0.631585	-0.792591	-0.792591	-0.698928	-0.698928	-0.585235	-0.585235	-0.452217	-0.452217
-0.751532	-0.885099	-0.885099	-0.826196	-0.826196	-0.696419	-0.696419	-0.5	-0.497293
-0.831865	-0.906973	-0.912634	-0.893756	-0.887299	-0.747329	-0.747329	-0.533667	-0.533667
-0.84119	-0.880057	-0.872009	-0.907855	-0.907855	-0.742428	-0.742428	-0.519711	-0.519711
-0.801311	-0.790253	-0.782432	-0.878635	-0.871149	-0.686003	-0.686003	-0.473814	-0.473814
-0.699714	-0.659469	-0.65192	-0.785684	-0.771557	-0.588218	-0.588218	-0.381182	-0.381182
-0.554707	-0.487955	-0.480833	-0.636553	-0.629365	-0.460109	-0.460109	-0.260768	-0.260768
-0.354683	-0.274591	-0.274591	-0.439318	-0.439318	-0.296816	-0.296816	-0.134536	-0.134536
-0.139284	0.128062	0.128062	-0.214709	-0.210238	0.186815	0.186815	0.174929	0.174929
0.20025	0.314006	0.314006	0.121655	0.131529	0.275136	0.284605	0.355106	0.355106
0.44643	0.534883	0.534883	0.375766	0.375766	0.470425	0.470425	0.529245	0.529245
0.661287	0.720139	0.7245	0.60208	0.60208	0.651153	0.660984	0.670522	0.670522

0.811542	0.863539	0.863539	0.774209	0.774209	0.807775	0.807775	0.766551	0.766551
0.90471	0.945145	0.945145	0.878009	0.878009	0.904434	0.904434	0.812527	0.812527
0.953415	0.977548	0.974166	0.924554	0.924554	0.94921	0.94921	0.831986	0.831986
0.939415	0.970979	0.962549	0.93723	0.93723	0.928493	0.932309	0.82	0.82
0.894427	0.91526	0.920869	0.906863	0.906863	0.881419	0.881419	0.778781	0.778781
0.810062	0.824197	0.83006	0.827587	0.827587	0.787147	0.787147	0.708308	0.708308
0.677422	0.692026	0.69029	0.721388	0.714493	0.658635	0.658635	0.596657	0.596657
0.502195	0.509902	0.509313	0.554437	0.554437	0.496488	0.496488	0.434166	0.434166
0.296985	0.286007	0.280179	0.353553	0.353553	0.296985	0.296985	0.240416	0.240416
-0.111803	-0.120416	-0.128062	-0.167631	-0.17088	-0.141421	-0.141421	0.028284	0.028284
-0.321403	-0.405216	-0.405216	-0.311448	-0.311448	-0.282843	-0.282843	-0.202237	-0.202237
-0.575674	-0.715891	-0.715891	-0.600083	-0.600083	-0.52345	-0.52345	-0.406079	-0.406079
-0.794796	-0.957706	-0.957706	-0.849058	-0.849058	-0.742159	-0.742159	-0.577062	-0.577062
-0.975756	-1.099318	-1.099318	-1.028008	-1.028008	-0.904434	-0.904434	-0.690507	-0.690507
-1.100227	-1.17047	-1.16211	-1.152562	-1.152562	-0.987927	-0.987927	-0.75505	-0.75505
-1.15382	-1.164989	-1.156763	-1.222865	-1.222865	-1.025524	-1.016366	-0.796241	-0.796241
-1.149478	-1.126455	-1.118302	-1.229187	-1.229187	-1.001798	-1.006231	-0.798311	-0.798311
-1.100591	-1.038123	-1.036002	-1.185622	-1.185622	-0.948947	-0.948947	-0.75505	-0.7571
-0.998499	-0.928009	-0.91214	-1.098772	-1.092245	-0.857555	-0.857555	-0.672681	-0.672681
-0.86093	-0.768375	-0.760592	-0.963328	-0.955877	-0.730068	-0.730068	-0.545894	-0.545894
-0.679559	-0.580517	-0.566392	-0.792465	-0.785175	-0.580517	-0.580517	-0.401123	-0.401123
-0.478017	-0.361248	-0.354683	-0.586941	-0.5728	-0.414005	-0.408044	-0.241868	-0.241868
-0.248395	-0.141421	-0.141421	-0.342053	-0.342053	-0.25318	-0.25318	-0.116619	-0.1253
0.106301	0.20025	0.210238	-0.110454	0.11	0.233452	0.233452	0.205183	0.212603
0.315753	0.4272	0.430813	0.208806	0.218403	0.363456	0.373363	0.371214	0.371214
0.522015	0.612699	0.617171	0.444185	0.444185	0.532353	0.532353	0.505964	0.505964
0.681542	0.74793	0.74793	0.62426	0.62426	0.674685	0.674685	0.599083	0.599083
0.774726	0.816333	0.821523	0.742024	0.742024	0.759605	0.759605	0.63561	0.63561
0.810247	0.843801	0.840595	0.782432	0.782432	0.803243	0.803243	0.631506	0.631506
0.796241	0.809938	0.815414	0.779872	0.779872	0.781857	0.781857	0.598415	0.598415
0.737902	0.748866	0.746324	0.729178	0.729178	0.720902	0.720902	0.526118	0.536004
0.635295	0.64405	0.642028	0.643506	0.643506	0.617171	0.617171	0.432897	0.432897
0.493964	0.49679	0.49679	0.524023	0.524023	0.485489	0.485489	0.310644	0.311448
0.322025	0.318277	0.318904	0.366197	0.366197	0.334215	0.334215	0.160312	0.160312
0.130384	0.121655	0.120416	0.184391	0.184391	0.17	0.17	0.044721	0.044721
-0.130384	-0.200998	-0.21095	-0.155242	-0.155242	-0.130384	-0.130384	-0.147648	-0.147648
-0.344819	-0.4531	-0.4531	-0.360555	-0.360555	-0.300167	-0.300167	-0.265707	-0.265707
-0.525547	-0.666483	-0.666483	-0.573062	-0.573062	-0.470744	-0.470744	-0.376431	-0.376431
-0.667083	-0.824924	-0.816333	-0.738173	-0.738173	-0.610328	-0.610328	-0.45607	-0.45607
-0.778203	-0.895879	-0.895879	-0.846463	-0.838689	-0.709366	-0.709366	-0.494773	-0.494773
-0.831865	-0.904434	-0.904434	-0.901388	-0.893756	-0.747329	-0.747329	-0.523927	-0.521728
-0.832406	-0.858021	-0.85	-0.900278	-0.900278	-0.724707	-0.724707	-0.508035	-0.509902
-0.778974	-0.762168	-0.760592	-0.850412	-0.850412	-0.663702	-0.663702	-0.453982	-0.453982
-0.677422	-0.623699	-0.616198	-0.750067	-0.750067	-0.566127	-0.566127	-0.37054	-0.37054
-0.518652	-0.452548	-0.445533	-0.601082	-0.601082	-0.431856	-0.431856	-0.240832	-0.241868
-0.333017	-0.255539	-0.250599	-0.411096	-0.411096	-0.277849	-0.277849	-0.120416	-0.120416
-0.123693	0.127279	0.120416	-0.187883	-0.187883	0.1772	0.1772	0.161245	0.161245
0.2	0.304138	0.315753	0.120416	0.130384	0.272029	0.272029	0.319061	0.319061
0.4272	0.525547	0.525547	0.353412	0.357771	0.450444	0.450444	0.484665	0.484665
0.620322	0.688767	0.688767	0.571402	0.571402	0.61	0.61	0.616847	0.616847
0.757694	0.810062	0.810062	0.724224	0.724224	0.747262	0.747262	0.693758	0.693758
0.837735	0.87818	0.87818	0.814002	0.814002	0.831685	0.831685	0.730068	0.730068

0.868159	0.896939	0.893588	0.846463	0.846463	0.8544	0.8544	0.725672	0.735459
0.854283	0.876641	0.868217	0.84386	0.84386	0.837735	0.837735	0.70406	0.70406
0.787147	0.807094	0.804487	0.799812	0.799812	0.773886	0.778203	0.65307	0.65307
0.684763	0.708025	0.7	0.714213	0.714213	0.671193	0.671193	0.560892	0.560892
0.552268	0.554437	0.560803	0.587282	0.580517	0.543783	0.543783	0.437379	0.437379
0.364005	0.367696	0.367967	0.422019	0.416173	0.376431	0.376431	0.274591	0.274591
0.166433	0.145602	0.155242	0.218403	0.218403	0.192354	0.192354	0.100499	0.100499
-0.151327	-0.220227	-0.220227	-0.17088	-0.17088	-0.158114	-0.158114	-0.104403	-0.104403
-0.402616	-0.516236	-0.516236	-0.411096	-0.420595	-0.36	-0.36	-0.288617	-0.288617
-0.639062	-0.787147	-0.787147	-0.671193	-0.671193	-0.580517	-0.580517	-0.460977	-0.460977
-0.815414	-0.972471	-0.972471	-0.876584	-0.876584	-0.759605	-0.759605	-0.582495	-0.592284
-0.961769	-1.073778	-1.070701	-1.018283	-1.018283	-0.882553	-0.886002	-0.664906	-0.664906
-1.050952	-1.109414	-1.101136	-1.108873	-1.108873	-0.94541	-0.94541	-0.718053	-0.718053
-1.077822	-1.084666	-1.082266	-1.151086	-1.151086	-0.948472	-0.952733	-0.737564	-0.737564
-1.051119	-1.024158	-1.008018	-1.135694	-1.135694	-0.917061	-0.917061	-0.715891	-0.715891
-0.980051	-0.922009	-0.906035	-1.064049	-1.064049	-0.847231	-0.847231	-0.65307	-0.65307
-0.864523	-0.790253	-0.782432	-0.956713	-0.956713	-0.734983	-0.740608	-0.557315	-0.557315
-0.718679	-0.617171	-0.60959	-0.813941	-0.806598	-0.604401	-0.604401	-0.432897	-0.432897
-0.530094	-0.417253	-0.417253	-0.622254	-0.622254	-0.445982	-0.445982	-0.280179	-0.280179
-0.318277	-0.201246	-0.196977	-0.411096	-0.404599	-0.291548	-0.291548	-0.136015	-0.136015
0.11	0.136015	0.136015	-0.174642	-0.17088	0.205913	0.205913	0.161245	0.161245
0.240832	0.354401	0.357351	0.140357	0.140357	0.310483	0.310483	0.313847	0.313847
0.461736	0.550364	0.554617	0.371214	0.371214	0.480416	0.480416	0.468188	0.468188
0.633246	0.702353	0.707107	0.576888	0.576888	0.629682	0.629682	0.582409	0.582409
0.748465	0.797559	0.802621	0.708025	0.708025	0.734983	0.744648	0.637887	0.637887
0.810247	0.843801	0.843801	0.776209	0.776209	0.800062	0.800062	0.655134	0.655134
0.814371	0.840595	0.840595	0.79511	0.79511	0.809938	0.809938	0.641327	0.641327
0.778203	0.801561	0.793221	0.772334	0.772334	0.770779	0.770779	0.598415	0.598415
0.706612	0.718471	0.716101	0.714493	0.714493	0.688767	0.688767	0.526118	0.526118
0.595399	0.6	0.598164	0.615224	0.615224	0.581808	0.581808	0.414367	0.424264
0.449444	0.446878	0.445982	0.475079	0.475079	0.446542	0.446542	0.291548	0.291548
0.270185	0.262488	0.256125	0.319061	0.310644	0.283196	0.283196	0.150333	0.150333
0.082462	-0.089443	-0.089443	0.14	0.14	0.133417	0.133417	0.02	0.02
-0.19105	-0.266833	-0.266833	-0.2	-0.2	-0.167631	-0.167631	-0.148661	-0.158114
-0.388973	-0.514782	-0.514782	-0.412311	-0.412311	-0.341321	-0.341321	-0.278927	-0.278927
-0.560803	-0.715891	-0.707107	-0.610574	-0.610574	-0.50448	-0.50448	-0.390512	-0.390512
-0.693542	-0.843801	-0.843801	-0.764003	-0.764003	-0.632456	-0.632456	-0.460977	-0.458912
-0.791581	-0.895879	-0.901388	-0.85276	-0.85276	-0.722357	-0.722357	-0.5001	-0.5001
-0.836481	-0.890505	-0.888144	-0.893756	-0.893756	-0.738241	-0.738241	-0.509902	-0.509902
-0.818841	-0.836002	-0.82801	-0.886172	-0.886172	-0.711196	-0.711196	-0.498197	-0.498197
-0.756637	-0.732462	-0.724707	-0.828794	-0.828794	-0.641405	-0.641405	-0.444072	-0.444072
-0.646607	-0.595483	-0.594643	-0.721803	-0.721803	-0.538238	-0.544059	-0.361248	-0.361248
-0.496488	-0.431393	-0.4245	-0.579828	-0.5728	-0.410366	-0.410366	-0.240832	-0.240832
-0.318904	-0.233238	-0.228254	-0.396989	-0.389487	-0.269258	-0.269258	-0.122066	-0.122066
-0.126491	0.120416	0.120416	-0.187883	-0.178885	0.164924	0.167631	0.134164	0.134164
0.284429		0.111803		0.240416		0.274591		
0.481041		0.322025		0.400125		0.412311		
0.635059		0.50774		0.549181		0.531601		

Node No.								
2078	1580	1889	2051	2249				
Easting	Northing	Easting	Northing	Easting				
1475631	539432.6	1479145	531349.9	1487681	535441.4	1490007	538317.8	1494946

Velocity, fps		Velocity, fps		Velocity, fps		Velocity, fps		Velocity		
Existing	Plan	Existing	Plan	Existing	Plan	Existing	Plan	Existing		
-0.078102	-0.078102	-0.05	-0.05	-0.01	-0.01	-0.01	-0.01	-0.01	-0.031623	
-0.078102	-0.078102	-0.05	-0.05	-0.01	-0.01	-0.01	-0.01	-0.01	-0.031623	
-0.092195	-0.092195	-0.06	-0.06	-0.02	-0.02	-0.02	-0.02	-0.02	-0.041231	
-0.114018	-0.120416	-0.09	-0.09	-0.05	-0.05	-0.04	-0.04	-0.04	-0.060828	
-0.176918	-0.176918	-0.160312	-0.160312	-0.12	-0.12	-0.11	-0.11	-0.110454	-0.121655	
-0.282843	-0.282843	-0.27074	-0.27074	-0.23	-0.23	-0.20025	-0.20025	-0.20025	-0.202237	
-0.403113	-0.403113	-0.413038	-0.413038	-0.370135	-0.370135	-0.330606	-0.330606	-0.330606	-0.314006	
-0.524023	-0.524023	-0.545894	-0.545894	-0.520865	-0.520865	-0.450999	-0.450999	-0.450999	-0.444072	
-0.62482	-0.62482	-0.667533	-0.667533	-0.672681	-0.672681	-0.582151	-0.582151	-0.582151	-0.574282	
-0.69814	-0.69814	-0.756637	-0.756637	-0.79511	-0.796304	-0.692604	-0.692604	-0.692604	-0.703491	
-0.742024	-0.742024	-0.79404	-0.79404	-0.879659	-0.879659	-0.773175	-0.773175	-0.773175	-0.803057	
-0.758024	-0.758024	-0.801561	-0.801561	-0.923959	-0.923959	-0.823893	-0.823893	-0.823893	-0.86209	
-0.746324	-0.738173	-0.760592	-0.760592	-0.925743	-0.927631	-0.843801	-0.843801	-0.843801	-0.881419	
-0.70214	-0.70214	-0.7	-0.7	-0.888426	-0.888426	-0.813941	-0.813941	-0.813941	-0.86093	
-0.638201	-0.638201	-0.600333	-0.600333	-0.810247	-0.810247	-0.754255	-0.754255	-0.754255	-0.800562	
-0.538238	-0.538238	-0.481664	-0.481664	-0.700928	-0.700928	-0.654905	-0.654905	-0.654905	-0.71007	
-0.422019	-0.422019	-0.33541	-0.33541	-0.556597	-0.556597	-0.536004	-0.536004	-0.536004	-0.590085	
-0.280179	-0.280179	-0.174929	-0.174929	-0.393954	-0.393954	-0.37855	-0.37855	-0.37855	-0.450444	
-0.134164	-0.134164	0.13	0.13	-0.219317	-0.219317	-0.202485	-0.202485	-0.202485	-0.291548	
0.05099	0.060828	0.288444	0.288444	0.148661	0.148661	0.053852	0.053852	0.053852	-0.117047	
0.222036	0.222036	0.43382	0.43382	0.268328	0.268328	0.2502	0.260192	0.08544		
0.376431	0.376431	0.547814	0.547814	0.427551	0.427551	0.482597	0.482597	0.280179		
0.487955	0.494975	0.639062	0.639062	0.550818	0.550818	0.657647	0.667533	0.473814		
0.560803	0.560803	0.686222	0.686222	0.640312	0.640312	0.749667	0.749667	0.596825		
0.580086	0.580086	0.686222	0.686222	0.681836	0.681836	0.771038	0.771038	0.657647		
0.552268	0.560803	0.622977	0.622977	0.662722	0.662722	0.733485	0.733485	0.659242		
0.501199	0.501199	0.544243	0.544243	0.594138	0.594138	0.667083	0.667083	0.619839		
0.398121	0.398121	0.434626	0.434626	0.486621	0.496488	0.557853	0.557853	0.533667		
0.25632	0.25632	0.305287	0.305287	0.361386	0.361386	0.411096	0.411096	0.420595		
-0.100499	-0.100499	0.166433	0.166433	0.206155	0.206155	0.237065	0.237065	0.268328		
-0.1253	-0.1253	-0.156205	-0.156205	0.060828	0.060828	0.092195	0.092195	0.130384		
-0.282843	-0.29	-0.288617	-0.298329	-0.202237	-0.202237	-0.189737	-0.189737	-0.156205		
-0.410366	-0.410366	-0.440114	-0.440114	-0.410122	-0.410122	-0.360555	-0.360555	-0.310483		
-0.488365	-0.488365	-0.596825	-0.596825	-0.592115	-0.592115	-0.520865	-0.520865	-0.453982		
-0.552268	-0.552268	-0.738241	-0.738241	-0.725603	-0.725603	-0.643817	-0.643817	-0.580775		
-0.573847	-0.573847	-0.786384	-0.786384	-0.800625	-0.800625	-0.707107	-0.707107	-0.670075		
-0.581378	-0.581378	-0.745453	-0.745453	-0.815843	-0.815843	-0.726911	-0.726911	-0.730274		
-0.553173	-0.553173	-0.663702	-0.663702	-0.771298	-0.771298	-0.70859	-0.70859	-0.740068		
-0.482701	-0.482701	-0.541479	-0.541479	-0.686804	-0.686804	-0.639531	-0.639531	-0.69		
-0.376431	-0.376431	-0.4	-0.4	-0.544243	-0.544243	-0.519711	-0.519711	-0.519711	-0.59	
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-0.05831	-0.05831	-0.060828	-0.060828	-0.202485	-0.202485	-0.17	-0.17	-0.280713		

0.162788	0.162788	0.246982	0.246982	0.206155	0.206155	0.1253	0.1253	-0.072801
0.403113	0.403113	0.453542	0.453542	0.398497	0.398497	0.420119	0.420119	0.19
0.608276	0.608276	0.623699	0.623699	0.612944	0.612944	0.712531	0.712531	0.481664
0.754321	0.754321	0.764853	0.764853	0.790253	0.80025	0.916624	0.916624	0.73437
0.848764	0.848764	0.85703	0.85703	0.923472	0.923472	1.029563	1.029563	0.894539
0.871321	0.871321	0.876641	0.876641	0.976217	0.976217	1.072007	1.073546	0.985089
0.83863	0.83863	0.85703	0.85703	0.989949	0.989949	1.075174	1.075174	1.017104
0.749466	0.749466	0.80604	0.80604	0.971648	0.971648	1.025914	1.025914	0.99985
0.621289	0.621289	0.725672	0.725672	0.904268	0.904268	0.947259	0.947259	0.932148
0.460435	0.460435	0.604152	0.613922	0.817863	0.817863	0.827647	0.827647	0.825651
0.3	0.3	0.465725	0.465725	0.681542	0.681542	0.669403	0.669403	0.681542
0.098995	0.098995	0.295466	0.295466	0.518652	0.518652	0.483839	0.483839	0.505964
-0.161245	-0.161245	0.111803	0.111803	0.317648	0.317648	0.250599	0.250599	0.308869
-0.422019	-0.422019	-0.218403	-0.228035	0.133417	0.133417	-0.111803	-0.111803	0.141421
-0.626259	-0.626259	-0.490102	-0.490102	-0.294109	-0.294109	-0.33541	-0.33541	-0.272947
-0.745185	-0.745185	-0.748131	-0.748131	-0.610328	-0.610328	-0.590085	-0.590085	-0.511957
-0.823286	-0.823286	-0.970155	-0.970155	-0.891403	-0.891403	-0.811542	-0.821523	-0.733348
-0.874586	-0.874586	-1.065692	-1.065692	-1.076708	-1.076708	-0.974166	-0.974166	-0.91022
-0.898109	-0.904268	-1.063015	-1.063015	-1.175457	-1.175457	-1.055746	-1.055746	-1.030049
-0.898109	-0.898109	-1.021225	-1.021225	-1.200333	-1.200333	-1.096586	-1.096586	-1.100182
-0.878009	-0.878009	-0.960208	-0.960208	-1.182582	-1.182582	-1.096586	-1.096586	-1.110405
-0.842021	-0.842021	-0.87	-0.87	-1.121784	-1.121784	-1.0469	-1.056835	-1.080417
-0.764003	-0.764003	-0.750267	-0.750267	-1.021812	-1.021812	-0.966282	-0.966282	-1.010198
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-0.520096	-0.520096	-0.427551	-0.425793	-0.706045	-0.708802	-0.68884	-0.68884	-0.74027
-0.35609	-0.35609	-0.237065	-0.237065	-0.506952	-0.506952	-0.509902	-0.509902	-0.571402
-0.186011	-0.180278	0.152971	0.152971	-0.302324	-0.302324	-0.303645	-0.303645	-0.383275
0.031623	0.031623	0.314006	0.314006	-0.160312	-0.160312	-0.092195	-0.092195	-0.189737
0.2	0.2	0.456508	0.456508	0.252389	0.252389	0.203961	0.203961	0.05831
0.368782	0.368782	0.572713	0.572713	0.414849	0.414849	0.460977	0.460977	0.250799
0.487955	0.487955	0.668506	0.668506	0.552268	0.552268	0.666108	0.666108	0.461736
0.553173	0.553173	0.7245	0.7245	0.650077	0.650077	0.769415	0.779295	0.60531
0.580086	0.580086	0.711688	0.711688	0.701142	0.701142	0.790759	0.800625	0.667533
0.566039	0.566039	0.657875	0.657875	0.681836	0.681836	0.762955	0.762955	0.677422
0.501199	0.501199	0.56648	0.56648	0.614003	0.614003	0.686586	0.686586	0.629682
0.398121	0.398121	0.447772	0.447772	0.50636	0.50636	0.567539	0.567539	0.543415
0.252982	0.252982	0.319061	0.319061	0.368782	0.368782	0.420595	0.420595	0.420595
-0.090554	-0.090554	0.18868	0.183576	0.215407	0.215407	0.245967	0.245967	0.277308
-0.130384	-0.130384	-0.164012	-0.164012	0.060828	0.060828	0.094868	0.094868	0.130384
-0.29	-0.29	-0.291204	-0.291204	-0.192354	-0.192354	-0.180278	-0.180278	-0.148661
-0.403609	-0.403609	-0.42	-0.43	-0.390128	-0.390128	-0.350571	-0.350571	-0.291204
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-0.517397	-0.517397	-0.633877	-0.633877	-0.732462	-0.732462	-0.669104	-0.669104	-0.700286
-0.453431	-0.453431	-0.521536	-0.521536	-0.6456	-0.6456	-0.600167	-0.600167	-0.650077
-0.347131	-0.347131	-0.380132	-0.380132	-0.51264	-0.51264	-0.490306	-0.490306	-0.560089
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0.176918	0.176918	0.243516	0.243516	0.212132	0.212132	0.152315	0.152315	-0.044721
0.403113	0.403113	0.441475	0.441475	0.408044	0.408044	0.43	0.43	0.21

0.594138	0.594138	0.611882	0.611882	0.612046	0.612046	0.713442	0.713442	0.49163
0.732462	0.732462	0.743303	0.743303	0.780256	0.780256	0.896772	0.896772	0.724431
0.804487	0.812712	0.815843	0.815843	0.883629	0.883629	0.989949	0.989949	0.864696
0.826801	0.826801	0.827647	0.837437	0.936483	0.936483	1.022595	1.022595	0.935361
0.785493	0.785493	0.80604	0.80604	0.929139	0.939042	1.016071	1.016071	0.957549
0.691158	0.691158	0.745252	0.745252	0.902552	0.902552	0.957079	0.957079	0.930591
0.566039	0.566039	0.655134	0.655134	0.825651	0.825651	0.866833	0.866833	0.853288
0.410488	0.410488	0.536004	0.536004	0.727805	0.727805	0.737564	0.737564	0.737564
0.244131	0.244131	0.388973	0.388973	0.59203	0.59203	0.579741	0.579741	0.59203
0.028284	0.028284	0.21095	0.21095	0.417852	0.417852	0.373363	0.373363	0.417852
-0.222036	-0.222036	-0.102956	-0.102956	0.214009	0.214009	0.155563	0.155563	0.220227
-0.45607	-0.45607	-0.31257	-0.31257	-0.141421	-0.141421	-0.17	-0.178885	-0.152643
-0.62482	-0.62482	-0.562228	-0.572189	-0.413038	-0.413038	-0.4219	-0.4219	-0.351141
-0.737564	-0.737564	-0.810494	-0.810494	-0.71007	-0.71007	-0.660303	-0.660303	-0.578705
-0.801561	-0.809197	-0.988585	-0.988585	-0.953362	-0.953362	-0.852877	-0.862844	-0.771622
-0.85276	-0.85276	-1.054751	-1.054751	-1.090367	-1.090367	-0.984124	-0.985089	-0.930054
-0.868332	-0.868332	-1.022399	-1.022399	-1.157411	-1.157411	-1.045801	-1.045801	-1.030049
-0.862148	-0.862148	-0.971288	-0.971288	-1.161034	-1.161034	-1.066771	-1.066771	-1.080185
-0.842021	-0.842021	-0.900222	-0.900222	-1.131592	-1.131592	-1.0469	-1.0469	-1.07042
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0.130384	0.138924	0.394462	0.394462	0.198494	0.198494	0.111803	0.111803	-0.070711
0.31241	0.320156	0.528015	0.528015	0.351141	0.351141	0.37	0.37	0.172627
0.460109	0.460109	0.636946	0.636946	0.504876	0.514782	0.60407	0.60407	0.390512
0.552268	0.552268	0.715122	0.715122	0.630079	0.640078	0.758024	0.758024	0.564358
0.606053	0.606053	0.74	0.74	0.710634	0.710634	0.810494	0.820366	0.667533
0.607454	0.607454	0.695701	0.695701	0.721734	0.721734	0.802309	0.802309	0.697209
0.564358	0.564358	0.622977	0.622977	0.673647	0.673647	0.75505	0.75505	0.67897
0.469574	0.469574	0.531413	0.531413	0.585491	0.585491	0.657343	0.657343	0.621691
0.349285	0.349285	0.407185	0.407185	0.468722	0.468722	0.528867	0.528867	0.526308
0.199249	0.199249	0.266271	0.266271	0.332415	0.332415	0.373363	0.373363	0.392173
-0.05	-0.05	0.145602	0.145602	0.178885	0.178885	0.197231	0.197231	0.233238
-0.184391	-0.184391	-0.186011	-0.186011	-0.067082	-0.067082	-0.082462	-0.082462	0.114018
-0.325576	-0.325576	-0.323883	-0.323883	-0.231948	-0.231948	-0.223607	-0.223607	-0.174929
-0.4245	-0.4245	-0.460977	-0.460977	-0.430465	-0.430465	-0.39	-0.39	-0.329848
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-0.559017	-0.559017	-0.776466	-0.776466	-0.780897	-0.780897	-0.697209	-0.697209	-0.670298
-0.552268	-0.552268	-0.714493	-0.714493	-0.77666	-0.77666	-0.707107	-0.707107	-0.710282
-0.509902	-0.509902	-0.622896	-0.622896	-0.722772	-0.722772	-0.669104	-0.669104	-0.700071
-0.439318	-0.439318	-0.500899	-0.500899	-0.626418	-0.626418	-0.590339	-0.590339	-0.640078
-0.325576	-0.325576	-0.36	-0.36	-0.493964	-0.493964	-0.470744	-0.470744	-0.540093
-0.19105	-0.19105	-0.192354	-0.192354	-0.319061	-0.319061	-0.313209	-0.313209	-0.400125
-0.022361	-0.014142	0.063246	0.063246	-0.17088	-0.17088	-0.128062	-0.128062	-0.230868
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0.396232	0.396232	0.431741	0.431741	0.405216	0.405216	0.440114	0.440114	0.22
0.5728	0.5728	0.592284	0.592284	0.592115	0.592115	0.693542	0.693542	0.482597
0.68884	0.68884	0.713863	0.713863	0.74027	0.74027	0.868332	0.868332	0.694622

0.760263	0.760263	0.77666	0.77666	0.833847	0.833847	0.940479	0.940479	0.824924
0.768505	0.768505	0.77666	0.77666	0.867006	0.876926	0.963379	0.963379	0.875728
0.727186	0.727186	0.747329	0.747329	0.859884	0.859884	0.935575	0.94541	0.888144
0.632851	0.632851	0.676831	0.676831	0.812158	0.812158	0.876641	0.876641	0.85
0.502494	0.502494	0.577235	0.577235	0.735459	0.735459	0.766877	0.766877	0.762955
0.355106	0.355106	0.449222	0.449222	0.618466	0.618466	0.628172	0.628172	0.637887
0.174929	0.174929	0.295466	0.295466	0.471275	0.471275	0.461736	0.461736	0.493356
-0.036056	-0.036056	0.136015	0.136015	0.299666	0.299666	0.268328	0.268328	0.31305
-0.262488	-0.262488	-0.17	-0.17	0.12083	0.12083	0.09	0.09	0.134164
-0.468615	-0.468615	-0.390512	-0.390512	-0.230868	-0.230868	-0.257099	-0.257099	-0.202485
-0.60208	-0.60959	-0.614003	-0.614003	-0.520384	-0.520384	-0.5001	-0.5001	-0.422019
-0.701783	-0.708378	-0.840119	-0.840119	-0.781025	-0.781025	-0.711126	-0.711126	-0.62514
-0.765768	-0.765768	-0.977394	-0.977394	-0.965194	-0.965194	-0.87367	-0.87367	-0.800562
-0.809197	-0.809197	-1.004042	-1.004042	-1.072007	-1.072007	-0.965194	-0.965194	-0.93
-0.824621	-0.824621	-0.972522	-0.972522	-1.108197	-1.108197	-1.006032	-1.006032	-1.01005
-0.812158	-0.812158	-0.900888	-0.900888	-1.10218	-1.10218	-1.007174	-1.017104	-1.030194
-0.770065	-0.770065	-0.820061	-0.820061	-1.041393	-1.041393	-0.966282	-0.976217	-1.010445
-0.706045	-0.706045	-0.700286	-0.700286	-0.943663	-0.943663	-0.886848	-0.886848	-0.940213
-0.6	-0.6	-0.561427	-0.561427	-0.805233	-0.805233	-0.776466	-0.776466	-0.83
-0.464004	-0.464004	-0.386394	-0.386394	-0.638905	-0.638905	-0.628013	-0.628013	-0.680074
-0.3	-0.3	-0.197231	-0.197231	-0.447772	-0.438634	-0.439318	-0.439318	-0.510882
-0.130384	-0.130384	0.152315	0.152315	-0.247588	-0.247588	-0.243516	-0.243516	-0.332415
0.063246	0.063246	0.3245	0.3245	0.158114	0.158114	0.060828	0.060828	-0.139284
0.25	0.25	0.469574	0.469574	0.290689	0.290689	0.27074	0.27074	0.098489
0.411096	0.411096	0.417732	0.583095	0.583095	0.458912	0.458912	0.522398	0.532353
0.530377	0.530377	0.537587	0.689493	0.689493	0.60075	0.60075	0.717008	0.717008
0.604401	0.604401	0.736817	0.736817	0.700286	0.700286	0.820366	0.820366	0.656201
0.632456	0.632456	0.733757	0.733757	0.741687	0.741687	0.841724	0.841724	0.717008
0.619112	0.619112	0.680074	0.680074	0.723395	0.723395	0.804114	0.804114	0.728354
0.545894	0.545894	0.597746	0.597746	0.654905	0.664831	0.735459	0.735459	0.690507
0.43382	0.43382	0.487032	0.487032	0.559017	0.568859	0.628172	0.628172	0.604152
0.295466	0.295466	0.353412	0.353412	0.441475	0.441475	0.490408	0.490408	0.490408
0.133417	0.133417	0.212603	0.212603	0.297321	0.297321	0.32311	0.32311	0.345398
-0.076158	-0.076158	-0.121655	-0.121655	0.136015	0.136015	0.148661	0.148661	0.192094
-0.240416	-0.240416	-0.215407	-0.215407	-0.1	-0.1	-0.106301	-0.106301	-0.104403
-0.360694	-0.360694	-0.367967	-0.360555	-0.360555	-0.280713	-0.290689	-0.271662	-0.271662
-0.445533	-0.445533	-0.445533	-0.503587	-0.503587	-0.480416	-0.480416	-0.440114	-0.440114
-0.502096	-0.502096	-0.502096	-0.659242	-0.659242	-0.643817	-0.643817	-0.572189	-0.573149
-0.537587	-0.537587	-0.537587	-0.758024	-0.758024	-0.748131	-0.748131	-0.666108	-0.666108
-0.551725	-0.551725	-0.551725	-0.76531	-0.76531	-0.782624	-0.782624	-0.707107	-0.707107
-0.544885	-0.544885	-0.544885	-0.694622	-0.694622	-0.766877	-0.766877	-0.697209	-0.707107
-0.502494	-0.502494	-0.60208	-0.60208	-0.713092	-0.713092	-0.657647	-0.657647	-0.690072
-0.417732	-0.417732	-0.490408	-0.490408	-0.607289	-0.607289	-0.578705	-0.578705	-0.63
-0.311448	-0.311448	-0.340147	-0.340147	-0.466154	-0.466154	-0.44911	-0.44911	-0.52
-0.176918	-0.176918	-0.176918	-0.174642	-0.174642	-0.310644	-0.310644	-0.291204	-0.291204
-0.014142	-0.014142	0.067082	0.067082	-0.167631	-0.167631	-0.114018	-0.114018	-0.210238
0.170294	0.170294	0.176918	0.246982	0.246982	0.212603	0.212603	0.155242	0.155242
0.361248	0.361248	0.414849	0.414849	0.386005	0.386005	0.410122	0.410122	0.20025
0.523259	0.523259	0.553173	0.553173	0.552268	0.552268	0.643817	0.643817	0.442832
0.637809	0.637809	0.664906	0.664906	0.680294	0.69029	0.797621	0.807527	0.636396
0.694046	0.694046	0.715891	0.715891	0.763217	0.763217	0.86977	0.86977	0.756637
0.701783	0.701783	0.706116	0.715891	0.786384	0.786384	0.882836	0.882836	0.796304

0.655134	0.655134	0.667083	0.667083	0.769415	0.769415	0.845281	0.847231	0.797621
0.569386	0.569386	0.586941	0.586941	0.711969	0.711969	0.778781	0.778781	0.751332
0.447772	0.447772	0.487647	0.487647	0.623699	0.623699	0.669403	0.669403	0.664906
0.300167	0.295296	0.364005	0.364005	0.506952	0.497293	0.51923	0.51923	0.538516
0.13	0.13	0.208087	0.208087	0.351141	0.351141	0.345398	0.345398	0.382753
-0.086023	-0.086023	-0.10198	-0.10198	0.186011	0.186011	0.156205	0.156205	0.208087
-0.283196	-0.283196	-0.237697	-0.237697	-0.106301	-0.106301	-0.128062	-0.128062	-0.114018
-0.453431	-0.453431	-0.440114	-0.440114	-0.332415	-0.332415	-0.332415	-0.332415	-0.269258
-0.573149	-0.573149	-0.646297	-0.646297	-0.600083	-0.600083	-0.550091	-0.550091	-0.466905
-0.658559	-0.658559	-0.840119	-0.840119	-0.813019	-0.813019	-0.722496	-0.722496	-0.64195
-0.715891	-0.715891	-0.936483	-0.936483	-0.947629	-0.947629	-0.844808	-0.844808	-0.790063
-0.745185	-0.745185	-0.934345	-0.944299	-1.024207	-1.024207	-0.915478	-0.915478	-0.890056
-0.760592	-0.760592	-0.88278	-0.892749	-1.029612	-1.029612	-0.936483	-0.936483	-0.950053
-0.74027	-0.74027	-0.810987	-0.810987	-1.002247	-1.002247	-0.916624	-0.926553	-0.950211
-0.684105	-0.684105	-0.72	-0.72	-0.921954	-0.921954	-0.867006	-0.867006	-0.910494
-0.598164	-0.598164	-0.600333	-0.600333	-0.814923	-0.814923	-0.766551	-0.766551	-0.830241
-0.492037	-0.492037	-0.442832	-0.442832	-0.667608	-0.667608	-0.646297	-0.647765	-0.7
0.35	-0.35	-0.272029	-0.272029	-0.484665	-0.484665	-0.488365	-0.488365	-0.550091
-0.186011	-0.186011	-0.12083	-0.12083	-0.302324	-0.302324	-0.300832	-0.300832	-0.381182
0.036056	0.028284	0.226716	0.226716	-0.162788	-0.162788	-0.092195	-0.092195	-0.194165
0.186011	0.186011	0.393573	0.393573	0.236008	0.236008	0.182483	0.182483	0.031623
0.368782	0.368782	0.529245	0.529245	0.405216	0.405216	0.441022	0.441022	0.23
0.502096	0.502096	0.635689	0.635689	0.562228	0.562228	0.666108	0.666108	0.452769
0.595483	0.603075	0.714703	0.714703	0.680074	0.680074	0.799062	0.799062	0.616604
0.64405	0.64405	0.730821	0.740405	0.751665	0.751665	0.840119	0.840119	0.707107
0.646607	0.646607	0.708802	0.708802	0.75326	0.75326	0.833607	0.833607	0.738241
0.595399	0.595399	0.636003	0.636003	0.705762	0.705762	0.786448	0.786448	0.729932
0.505371	0.505371	0.544059	0.544059	0.628013	0.628013	0.69857	0.708308	0.672681
0.389102	0.389102	0.436578	0.436578	0.531507	0.531507	0.589406	0.589406	0.574891
0.237697	0.237697	0.299666	0.299666	0.405216	0.405216	0.439659	0.439659	0.449222
0.08	0.08	0.162788	0.162788	0.26	0.26	0.27313	0.264008	0.308707
-0.122066	-0.122066	-0.116619	-0.116619	0.106301	0.106301	0.108167	0.108167	0.155563
-0.275862	-0.275862	-0.247386	-0.247386	-0.13	-0.13	-0.143178	-0.143178	-0.122066
-0.388973	-0.388973	-0.390128	-0.400125	-0.330151	-0.330151	-0.320624	-0.320624	-0.262488
-0.459674	-0.46669	-0.545894	-0.545894	-0.520865	-0.520865	-0.470425	-0.470425	-0.406079
-0.509117	-0.509117	-0.68884	-0.68884	-0.663702	-0.673647	-0.593043	-0.593043	-0.531507
-0.544518	-0.544518	-0.766551	-0.766551	-0.758024	-0.758024	-0.676018	-0.676018	-0.63
-0.551725	-0.551725	-0.755381	-0.755381	-0.782624	-0.782624	-0.707107	-0.707107	-0.69029
-0.530754	-0.537587	-0.683593	-0.683593	-0.7571	-0.7571	-0.697209	-0.697209	-0.710282
-0.488365	-0.488365	-0.592115	-0.592115	-0.693758	-0.693758	-0.647765	-0.647765	-0.68
-0.410366	-0.410366	-0.470106	-0.470106	-0.588218	-0.588218	-0.559017	-0.559017	-0.61
-0.304138	-0.304138	-0.330606	-0.330606	-0.4531	-0.4531	-0.439318	-0.439318	-0.51
-0.176918	-0.176918	-0.174642	-0.174642	-0.296816	-0.296816	-0.291204	-0.291204	-0.37
-0.022361	-0.022361	0.072801	0.072801	-0.161555	-0.161555	-0.108167	-0.108167	-0.210238
0.142127	0.142127	0.228473	0.228473	0.19105	0.19105	0.126491	0.136015	-0.041231
0.31241		0.376431		0.344819		0.360139		0.170294
0.452769		0.492443		0.492544		0.574282		0.373363
0.551725		0.59439		0.610082		0.718471		0.557315

	Node No.		Node No.	
	7286		7261	
Northing	Easting	Northing	Easting	Northing
539670.4	1523427	583654.2	1530206	577732

$\gamma$ , fps	Velocity, fps		Velocity, fps	
Plan	Existing	Plan	Existing	Plan
-0.031623	-0.09434	-0.09434	-0.104403	-0.104403
-0.031623	-0.09434	-0.09434	-0.104403	-0.104403
-0.041231	-0.09434	-0.09434	-0.104403	-0.104403
-0.060828	-0.102956	-0.102956	-0.114018	-0.114018
-0.111803	-0.138924	-0.138924	-0.145602	-0.145602
-0.202237	-0.197231	-0.197231	-0.21587	-0.21587
-0.314006	-0.305287	-0.313847	-0.339559	-0.339559
-0.444072	-0.471699	-0.471699	-0.50448	-0.50448
-0.574282	-0.665733	-0.665733	-0.693758	-0.693758
-0.703491	-0.879204	-0.879204	-0.880568	-0.880568
-0.803057	-1.092886	-1.092886	-1.048094	-1.048094
-0.86209	-1.264911	-1.264911	-1.171751	-1.181397
-0.881419	-1.400893	-1.400893	-1.256861	-1.256861
-0.86093	-1.478716	-1.478716	-1.288449	-1.288449
-0.800562	-1.48691	-1.48691	-1.269212	-1.278828
-0.71007	-1.450862	-1.450862	-1.208801	-1.208801
-0.590085	-1.342721	-1.342721	-1.094806	-1.094806
-0.450444	-1.18461	-1.18461	-0.94255	-0.94255
-0.291548	-0.976524	-0.976524	-0.736817	-0.736817
-0.117047	-0.710282	-0.710282	-0.471699	-0.471699
0.08544	-0.402244	-0.402244	-0.172047	-0.172047
0.290172	-0.05	-0.05	0.210238	0.210238
0.473814	0.328024	0.328024	0.514198	0.514198
0.596825	0.696563	0.696563	0.756902	0.756902
0.657647	0.99905	0.99905	0.963016	0.963016
0.659242	1.196704	1.196704	1.113239	1.122943
0.621691	1.28082	1.28082	1.193315	1.193315
0.533667	1.280352	1.273499	1.191008	1.191008
0.411096	1.188024	1.188024	1.118302	1.128051
0.268328	1.025329	1.025329	0.984886	0.984886
0.1253	0.799812	0.799812	0.771298	0.771298
-0.156205	0.520096	0.520096	0.485077	0.485077
-0.310483	0.183848	0.180278	0.145602	0.145602
-0.453982	-0.272947	-0.272947	-0.274591	-0.274591
-0.580345	-0.762168	-0.762168	-0.742159	-0.742159
-0.670075	-1.182286	-1.190168	-1.111261	-1.120893
-0.730274	-1.444022	-1.444022	-1.31042	-1.31042
-0.740068	-1.568216	-1.568216	-1.361249	-1.364001
-0.69	-1.568216	-1.568216	-1.3228	-1.3228
-0.59	-1.476347	-1.476347	-1.208801	-1.208801
-0.450111	-1.304301	-1.304301	-1.034456	-1.034456
-0.280713	-1.068316	-1.068316	-0.800062	-0.800062

-0.072801	-0.760263	-0.760263	-0.503289	-0.503289
0.19	-0.380132	-0.380132	-0.127279	-0.127279
0.481664	0.067082	0.067082	0.332415	0.333766
0.73437	0.558032	0.558032	0.722772	0.722772
0.894539	1.030776	1.038557	1.05513	1.05513
0.985089	1.398177	1.398177	1.358234	1.358234
1.017104	1.631318	1.631318	1.591257	1.591257
0.99985	1.758238	1.758238	1.75391	1.75391
0.932148	1.792122	1.792122	1.846104	1.855856
0.825651	1.748971	1.748971	1.855856	1.855856
0.681542	1.648787	1.648787	1.775641	1.775641
0.505964	1.478276	1.48553	1.61301	1.61301
0.308869	1.244508	1.244508	1.355913	1.355913
0.141421	0.941116	0.941116	1.038123	1.028397
-0.28178	0.572014	0.572014	0.640312	0.630635
-0.511957	0.150333	0.150333	0.167631	0.158114
-0.733348	-0.477074	-0.477074	-0.419762	-0.429535
-0.91022	-1.104219	-1.112115	-1.05513	-1.05513
-1.040048	-1.608011	-1.608011	-1.497231	-1.497231
-1.100182	-1.920417	-1.920417	-1.706019	-1.706019
-1.110405	-2.058762	-2.058762	-1.769209	-1.77882
-1.080417	-2.089043	-2.089043	-1.756844	-1.759602
-1.01005	-2.033347	-2.033347	-1.686802	-1.686802
-0.89	-1.919505	-1.919505	-1.563202	-1.5728
-0.74027	-1.747484	-1.747484	-1.398428	-1.408013
-0.571402	-1.517267	-1.517267	-1.192518	-1.192518
-0.383275	-1.251	-1.251	-0.945569	-0.945569
-0.189737	-0.934773	-0.934773	-0.65192	-0.65192
0.05831	-0.582495	-0.582495	-0.304138	-0.304138
0.250799	-0.18868	-0.18868	0.133417	0.133417
0.461736	0.228035	0.234307	0.490306	0.490306
0.60531	0.638905	0.646607	0.756902	0.756902
0.667533	0.991564	0.99905	0.972677	0.984937
0.677422	1.231666	1.231666	1.144771	1.144771
0.629682	1.337348	1.337348	1.224827	1.224827
0.543415	1.336899	1.336899	1.222497	1.222497
0.420595	1.251599	1.244588	1.159526	1.159526
0.28178	1.082081	1.074895	1.016366	1.016366
0.130384	0.849588	0.849588	0.8005	0.8005
-0.148661	0.562228	0.562228	0.514198	0.514198
-0.300832	0.223607	0.219317	0.1772	0.1772
-0.444072	-0.232594	-0.232594	-0.245153	-0.245153
-0.560357	-0.726223	-0.726223	-0.710634	-0.710634
-0.650077	-1.15421	-1.15421	-1.089312	-1.101635
-0.690652	-1.428006	-1.428006	-1.291201	-1.291201
-0.700286	-1.538083	-1.538083	-1.342013	-1.342013
-0.650077	-1.532188	-1.532188	-1.291201	-1.291201
-0.560089	-1.432201	-1.440312	-1.1772	-1.1772
-0.420119	-1.262458	-1.262458	-0.993277	-0.993277
-0.250799	-1.018332	-1.018332	-0.758947	-0.758947
-0.044721	-0.710282	-0.70214	-0.4531	-0.4531
0.21	-0.330151	-0.330151	-0.080623	-0.080623

0.49163	0.116619	0.116619	0.364966	0.364966
0.724431	0.594054	0.594054	0.732462	0.732462
0.864696	1.044844	1.044844	1.045466	1.05513
0.945304	1.390539	1.390539	1.338805	1.338805
0.957549	1.595525	1.595525	1.540292	1.550032
0.930591	1.700823	1.700823	1.68122	1.690976
0.853288	1.720727	1.71406	1.75391	1.763661
0.737564	1.66352	1.66352	1.744162	1.744162
0.59203	1.53522	1.53522	1.642224	1.642224
0.417852	1.350741	1.350741	1.448102	1.448102
0.220227	1.089036	1.089036	1.183596	1.183596
-0.152643	0.765768	0.765768	0.844038	0.844038
-0.360555	0.385876	0.385876	0.4245	0.4245
-0.578705	-0.150333	-0.150333	-0.07	-0.08
-0.781601	-0.728011	-0.728011	-0.679117	-0.679117
-0.930054	-1.312098	-1.312098	-1.234909	-1.234909
-1.030049	-1.716042	-1.724094	-1.570032	-1.570032
-1.080185	-1.942498	-1.942498	-1.706019	-1.706019
-1.07042	-2.030887	-2.030887	-1.737613	-1.737613
-1.020196	-2.016953	-2.025142	-1.686802	-1.696408
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-0.800062	-1.797443	-1.797443	-1.458801	-1.458801
-0.640703	-1.603278	-1.603278	-1.274873	-1.274873
-0.451774	-1.350926	-1.350926	-1.037401	-1.046948
-0.264764	-1.056835	-1.056835	-0.771622	-0.771622
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0.172627	-0.346699	-0.346699	-0.082462	-0.082462
0.390512	0.070711	0.070711	0.363456	0.364966
0.574282	0.498197	0.498197	0.671863	0.671863
0.677422	0.886172	0.886172	0.902497	0.91214
0.707107	1.17516	1.17516	1.115706	1.115706
0.68884	1.330564	1.330564	1.234544	1.234544
0.621691	1.379746	1.379746	1.27346	1.27346
0.526308	1.3366	1.329662	1.251719	1.251719
0.392173	1.209173	1.209173	1.149783	1.159526
0.233238	1.011385	1.011385	0.984886	0.984886
0.114018	0.764853	0.764853	0.739797	0.739797
-0.174929	0.464004	0.458039	0.434166	0.443847
-0.329848	0.120416	0.120416	0.076158	0.076158
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-0.590339	-0.860523	-0.860523	-0.827103	-0.827103
-0.670298	-1.248079	-1.248079	-1.164818	-1.164818
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-0.400125	-1.212477	-1.212477	-0.952103	-0.952103
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0.22	-0.272029	-0.272029	0.060828	0.05099
0.482597	0.158114	0.158114	0.406079	0.406079
0.694622	0.614003	0.614003	0.734983	0.744648

0.824924	1.037111	1.037111	1.033247	1.033247
0.875728	1.354732	1.354732	1.287866	1.297575
0.888144	1.538083	1.538083	1.467583	1.479595
0.85	1.621882	1.61524	1.579272	1.589025
0.762955	1.607016	1.607016	1.630245	1.630245
0.637887	1.535741	1.535741	1.591257	1.591257
0.493356	1.393449	1.393449	1.467583	1.467583
0.31305	1.180889	1.180889	1.263725	1.263725
0.134164	0.912853	0.912853	0.977446	0.977446
-0.202485	0.576281	0.576281	0.628172	0.628172
-0.422019	0.189737	0.186815	0.208806	0.199249
-0.623939	-0.363593	-0.363593	-0.315753	-0.325576
-0.800562	-0.954254	-0.954254	-0.897385	-0.907083
-0.93	-1.442012	-1.45	-1.351629	-1.351629
-1.01005	-1.760114	-1.768191	-1.582403	-1.582403
-1.030194	-1.914602	-1.914602	-1.662077	-1.664812
-1.010445	-1.950641	-1.958801	-1.652453	-1.655204
-0.940213	-1.903076	-1.903076	-1.582403	-1.592011
-0.83	-1.797443	-1.797443	-1.4684	-1.4684
-0.680074	-1.631104	-1.631104	-1.30361	-1.313202
-0.510882	-1.409113	-1.409113	-1.097679	-1.097679
-0.332415	-1.142847	-1.142847	-0.853815	-0.853815
-0.139284	-0.82662	-0.82662	-0.557136	-0.557136
0.098489	-0.468722	-0.468722	-0.194165	-0.194165
0.31	-0.080623	-0.076158	0.230217	0.230217
0.513517	0.348281	0.348281	0.565155	0.577235
0.656201	0.759276	0.759276	0.829699	0.829699
0.717008	1.097862	1.091238	1.05513	1.0648
0.728354	1.309695	1.309695	1.224827	1.224827
0.690507	1.401214	1.401214	1.304952	1.304952
0.604152	1.400714	1.400714	1.314686	1.314686
0.490408	1.30832	1.30832	1.261467	1.27122
0.345398	1.159655	1.159655	1.140044	1.140044
0.192094	0.940691	0.940691	0.933916	0.933916
-0.104403	0.667083	0.667083	0.669403	0.669403
-0.219317	0.355106	0.346699	0.342053	0.342053
-0.376563	-0.082462	-0.082462	-0.04	-0.04
-0.501597	-0.514004	-0.522015	-0.492443	-0.492443
-0.610082	-0.988585	-0.988585	-0.93145	-0.93145
-0.680294	-1.320038	-1.320038	-1.218401	-1.218401
-0.710282	-1.494021	-1.502065	-1.3228	-1.3228
-0.690072	-1.538083	-1.546157	-1.31042	-1.320038
-0.63	-1.482194	-1.482194	-1.230813	-1.230813
-0.52	-1.348481	-1.348481	-1.085219	-1.085219
-0.380132	-1.15434	-1.15434	-0.891852	-0.891852
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-0.022361	-0.588218	-0.588218	-0.349285	-0.349285
0.20025	-0.230217	-0.230217	0.064031	0.064031
0.442832	0.172047	0.178045	0.407922	0.417732
0.636396	0.606053	0.606053	0.713092	0.715681
0.756637	0.993579	0.993579	0.982344	0.982344
0.796304	1.275617	1.275617	1.205404	1.215113

0.797621	1.444991	1.438367	1.355913	1.36565
0.751332	1.500733	1.500733	1.436106	1.445856
0.664906	1.47187	1.479223	1.45561	1.467583
0.538516	1.379311	1.379311	1.404635	1.404635
0.386264	1.216306	1.216306	1.261467	1.263725
0.208087	0.990051	0.990051	1.038123	1.038123
-0.114018	0.709366	0.701783	0.751864	0.751864
-0.269258	0.368917	0.368917	0.392938	0.392938
-0.468722	-0.100499	-0.110454	-0.04	-0.05
-0.64195	-0.60803	-0.60803	-0.565155	-0.574891
-0.790063	-1.140175	-1.140175	-1.077033	-1.077033
-0.890056	-1.522005	-1.522005	-1.405205	-1.405205
-0.950053	-1.740259	-1.740259	-1.538441	-1.548063
-0.950211	-1.828579	-1.828579	-1.570032	-1.570032
-0.91022	-1.8228	-1.8228	-1.528823	-1.528823
-0.830241	-1.744964	-1.744964	-1.436802	-1.446409
	-0.7	-1.608975	-1.608975	-1.30361
-0.550364	-1.423025	-1.423025	-1.119732	-1.119732
-0.381182	-1.178898	-1.178898	-0.891852	-0.891852
-0.194165	-0.898721	-0.898721	-0.626259	-0.626259
0.031623	-0.568595	-0.568595	-0.304138	-0.304138
	0.23	-0.18868	-0.18868	0.114018
0.452769	0.220227	0.220227	0.470744	0.470744
0.626498	0.632535	0.632535	0.747262	0.747262
0.717008	0.992472	0.992472	0.982344	0.982344
0.738241	1.253196	1.246515	1.183596	1.183596
0.729932	1.387732	1.387732	1.295222	1.304952
0.672681	1.422146	1.415344	1.343912	1.343912
0.577235	1.379311	1.379311	1.324424	1.334166
0.449222	1.25873	1.25873	1.241974	1.251719
0.308707	1.081896	1.081896	1.089082	1.089082
0.155563	0.8422	0.8422	0.863481	0.863481
-0.122066	0.568507	0.562228	0.577235	0.577235
-0.262488	0.237065	0.237065	0.237697	0.247386
-0.406079	-0.196977	-0.196977	-0.152971	-0.152971
-0.531507	-0.662193	-0.662193	-0.618466	-0.618466
	-0.63	-1.088531	-1.088531	-1.016514
-0.69029	-1.364001	-1.364001	-1.240403	-1.240403
-0.710282	-1.502065	-1.502065	-1.31042	-1.31042
	-0.68	-1.518223	-1.518223	-1.281601
	-0.61	-1.440312	-1.440312	-1.189622
	-0.51	-1.298499	-1.298499	-1.044031
-0.370135	-1.09859	-1.09859	-0.850706	-0.850706
-0.210238	-0.854459	-0.854459	-0.60407	-0.60407
-0.031623	-0.560357	-0.560357	-0.317805	-0.317805
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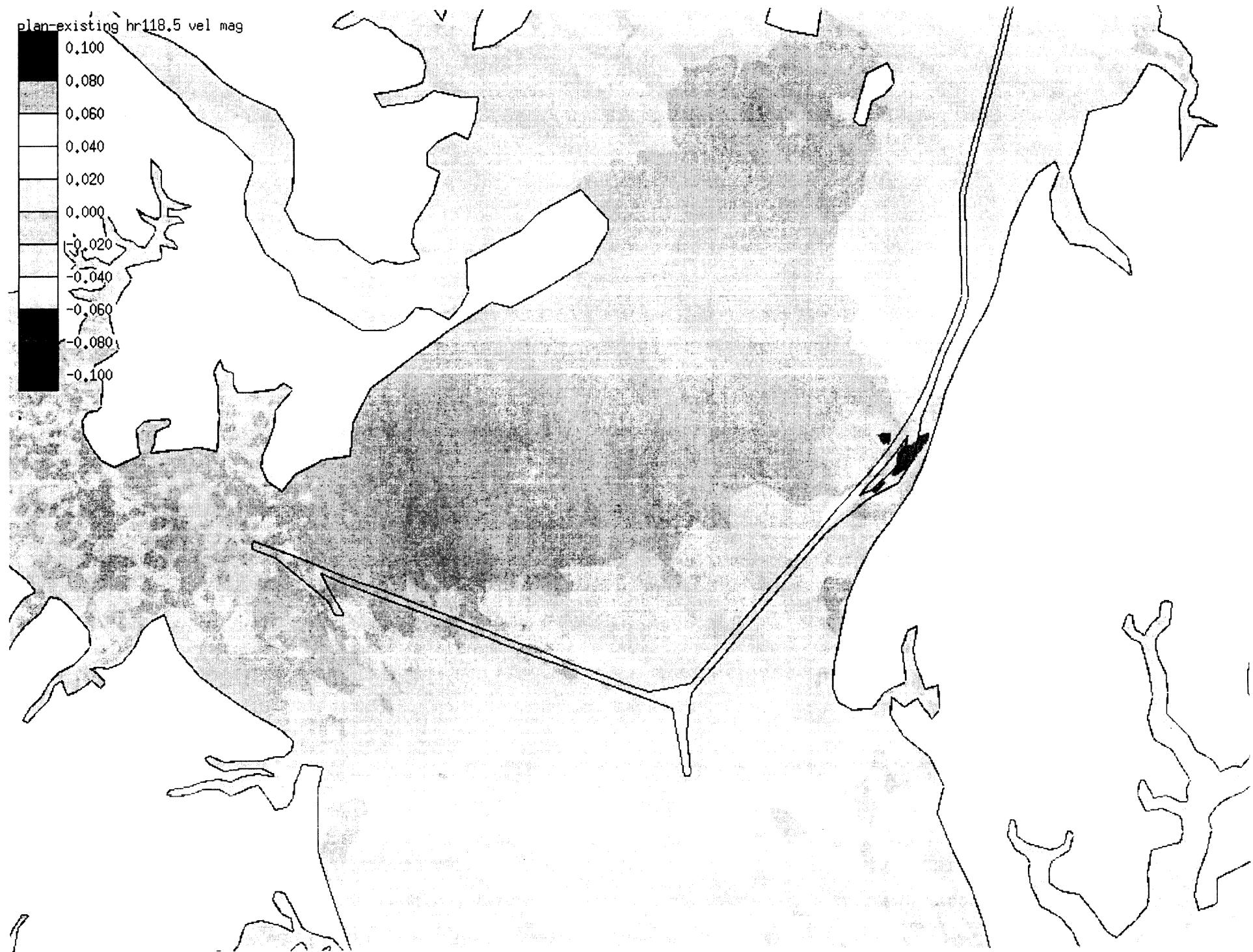
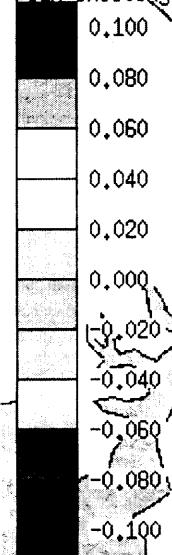
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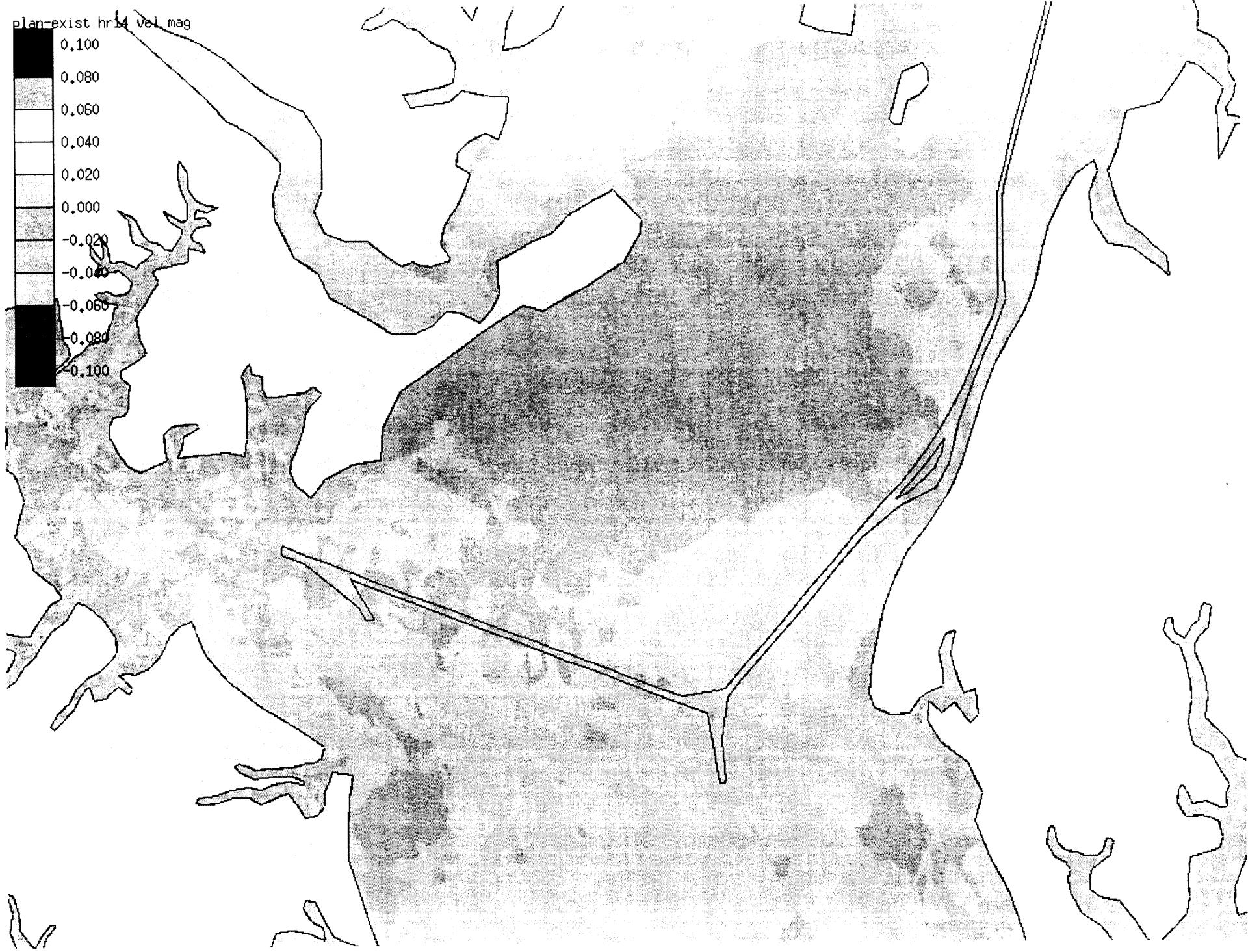
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-0.100



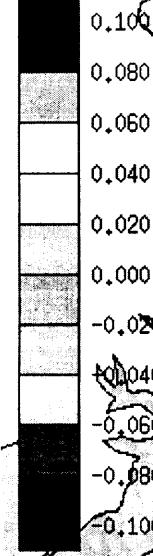


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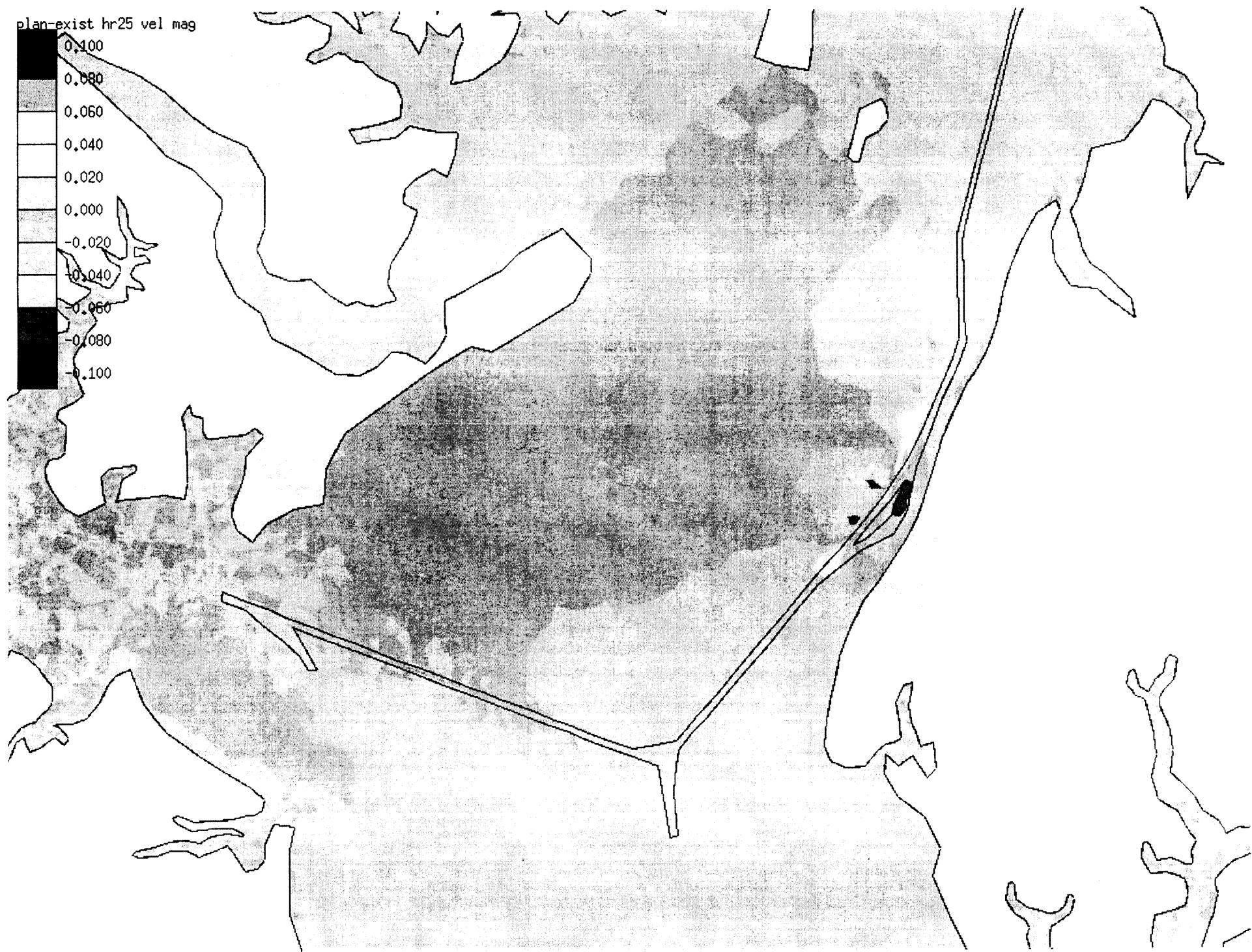
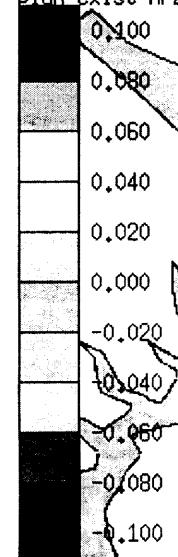




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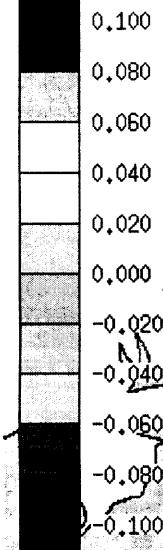


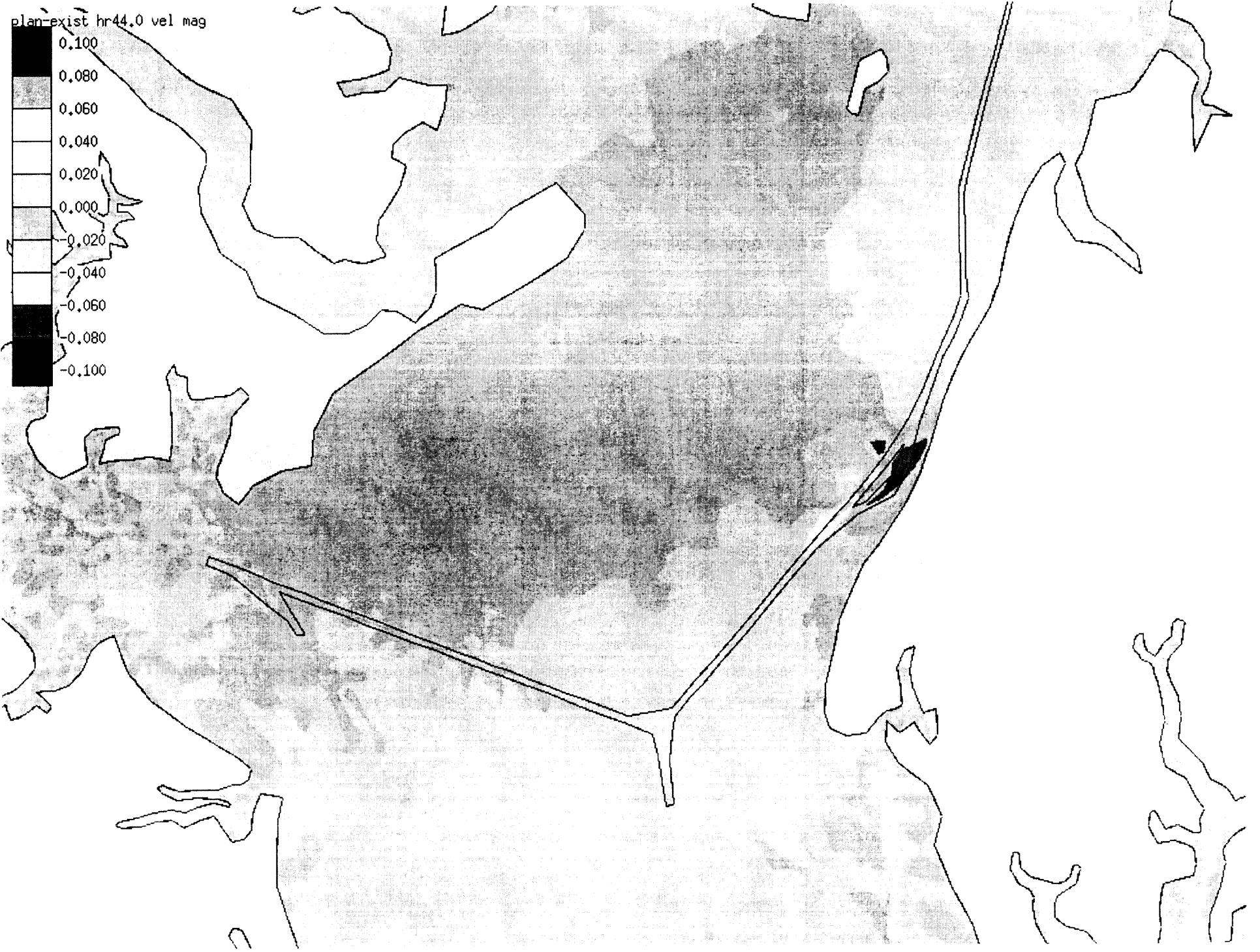
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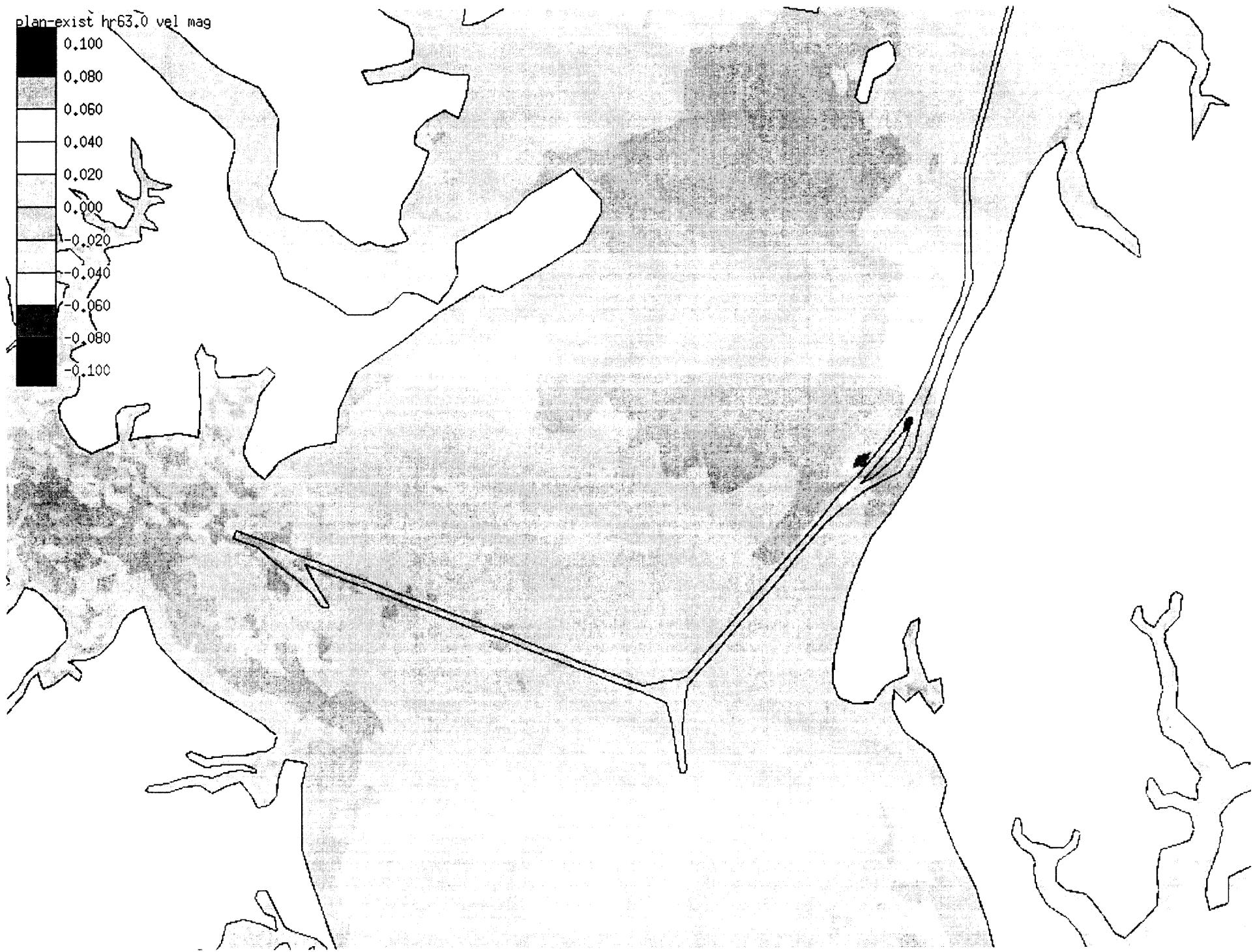
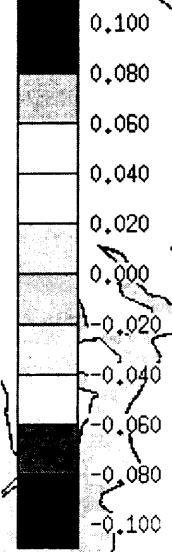




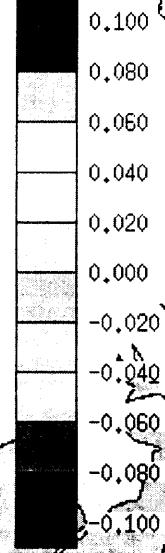




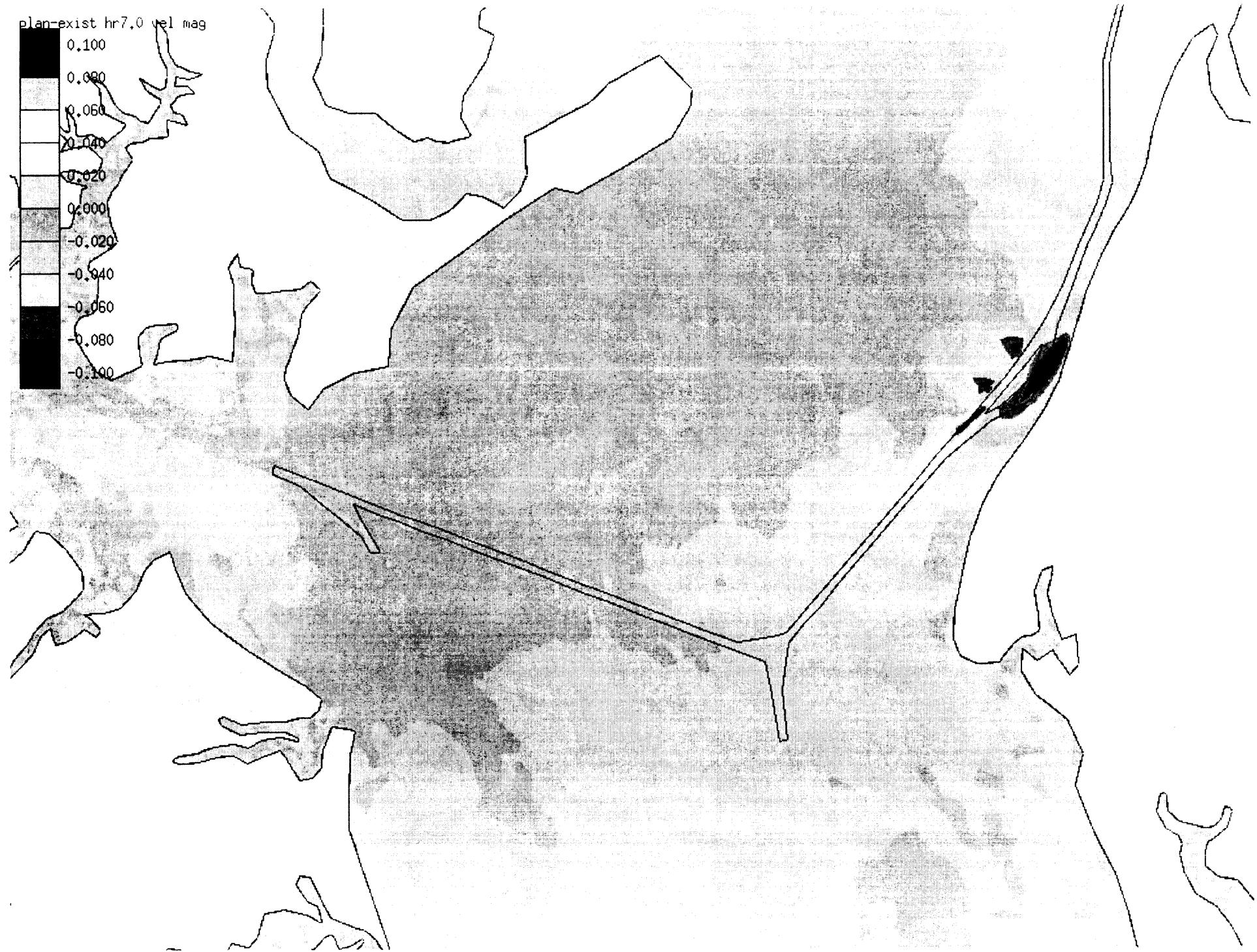
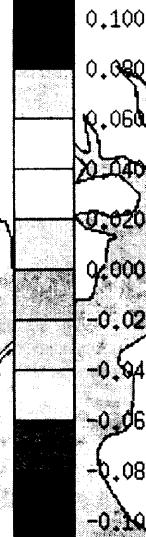
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plan-exist hr69.0 vel mag



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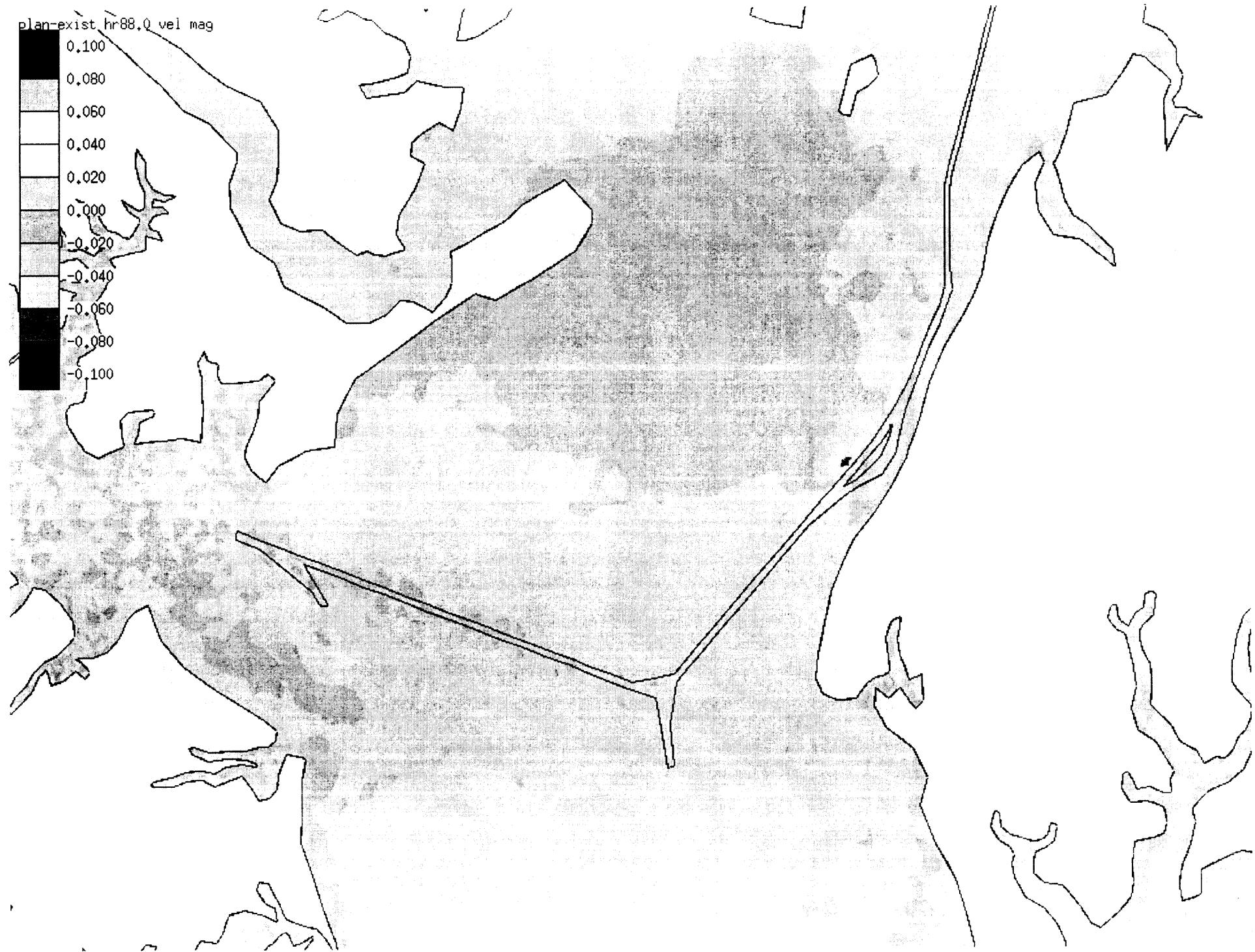
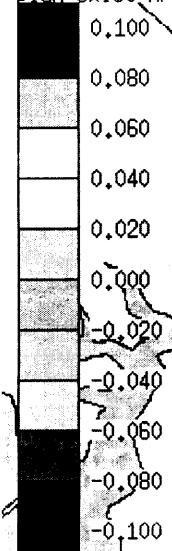




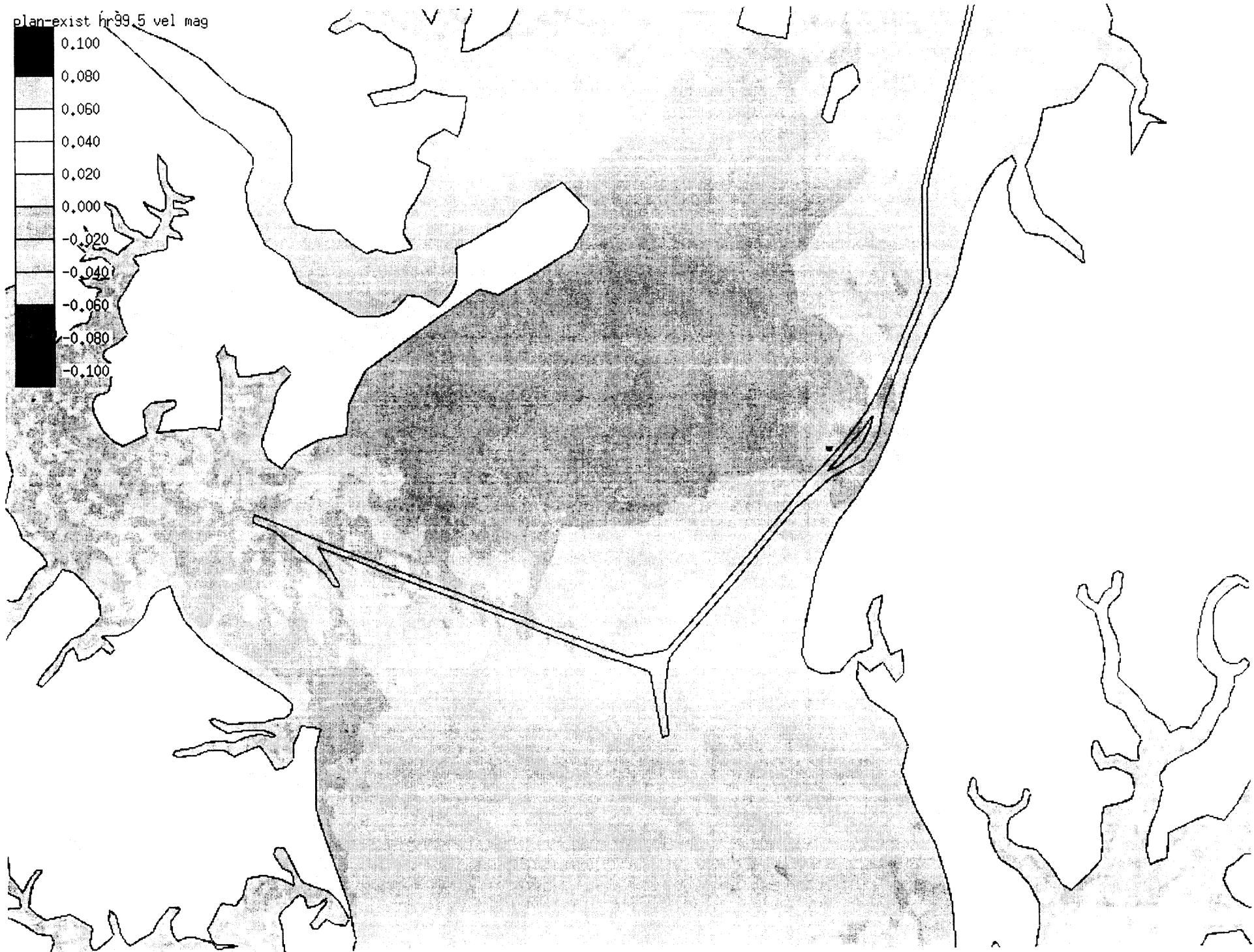
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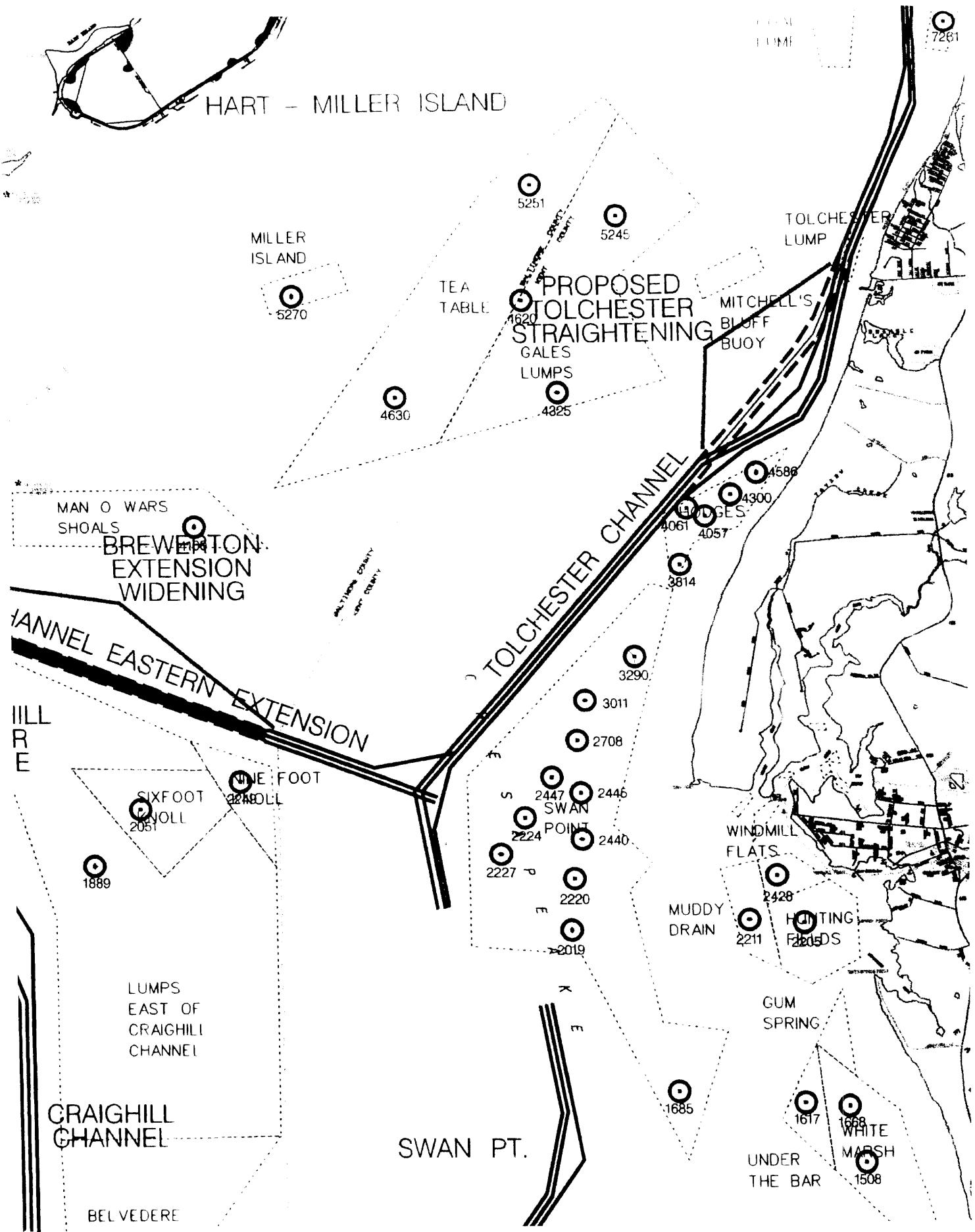


plan-exist hr88.0 vel mag









## Location of Hydrodynamic Modeling Nodes